Annual Forest Administration Report of the Province of Bombay 1937-38

Part I

1937-38
1938-39
& 1939-40

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FOREST ADMINISTRATION REPORT OF THE PROVINCE OF BOMBAY FOR THE YEAR 1937-38.

CHAPTER I.

CONSTITUTION OF STATE FORESTS.

1. Alterations in Area—(Forms Nos. 51 Parts I and II).

The changes in forest areas were as follows :—

Class of Forest.		Area on 1st April 1937.	Added during the year.	Excluded during the year.	Area on 31st March 1938.
		Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Reserved ..	In charge of Forest Department ..	10,579	124	135	10,568
	In charge of Revenue Department ..	1,639	13	16	1,636
Protected ..	In charge of Forest Department ..	162	2	4	160
	In charge of Revenue Department ..	618	1	2	617
	Total ..	12,998	140	157	12,981

The areas added and excluded comprise :—

	Square miles.	
	Gain.	Loss.
Afforestation and disforestments	1	18
Transfer from one Circle to another	92	92
Transfer from one Division to another	45	45
Errors corrected	2	2
Total ..	140	157

Net loss—17 square miles.

Out of the total area added to and excluded from the forests an area of 92 square miles, which constituted the Mandvi Sub-Division of the Central Circle, was transferred to the Northern Circle, where with the addition of the Baragaon Dangs, it formed the present Surat Sub-Division. An area of 31 square miles in the Northern Circle and about 14 square miles in the Southern Circle were transferred from one Division to another.

The disforestments were mostly in favour of cultivation, the Northern Circle contributing 8 square miles, Central Circle 5 square miles and the Southern Circle 4 square miles. Out of the area disforested in the Northern Circle 6 square miles were disforested in the Panch Mahals and the rest were chiefly woodland plots from the Thana Gurcharans. In the Central Circle, Poona, Satara, Ahmednagar and Sholapur Districts mainly shared the disforestments of about 5 square miles. Forest areas given out for cultivation on temporary leases in the Belgaum Division, and subsequently disforested after cultivation had been established, formed the bulk of the disforestments in the Southern Circle. The settlement of the frontier line between the British and Portuguese territories and the corrections in areas of forest survey numbers as directed by the Forest Settlement Officer, Kanara, account for a loss of over half a square mile.

2. Forest Settlements—(Form No. 52).

The total area pending settlement at the commencement of the year was 369 acres to which were added 3 square miles and 392 acres. Out of this area 1 square mile and 82 acres were finally settled. No expenditure was incurred on this account.

3. Demarcation—(Form No. 53).

25 miles (1 mile in the Northern Circle and 24 miles in the Southern Circle) of new boundaries were demarcated artificially at a cost of Rs. 200 and 23,249 miles of existing boundaries (including those between British territory and that of Goa, Mysore, Bhor State and the Kathi and Nala Estates) were repaired at a cost of Rs. 3,554. The total length of boundaries at the close of the year was 37,932 miles.

No effect was given to the settlement of the boundary between the Baroda State and British territory as the proposal to make the existing cleared fire-line on the Deomogra reserve boundary—the final inter-state boundary—is still under the consideration of Government.

4. Forest Surveys—(Form No. 54).

No survey work was undertaken during the year.

The expenditure on the constitution of state forests was :—

	1936–37.	1937–38.
	Rs.	Rs.
Northern Circle	49	43
Central Circle	15	380
Southern Circle	510	157

The expenditure shown against the Central Circle was due to the purchase of malki land for forest in the Poona Division.

CHAPTER II.

MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

(*a*) *Preparation and control of regular working plans.*

Preparation—(*Form No. 55*).—No new working plans other than those referred to in last year's report were sanctioned by Government.

(1) The working plan for the Thana Gurcharans was completed and submitted by the Gurcharan Officer, Thana, to the Chief Conservator, but it was returned to the Conservator for modification as the proposals made in the plan entailed too drastic a reversal of the present policy of Government and also the entertainment of considerable extra establishment.

(2) The revised working plan for the Panch Mahals forests was completed after the close of the year.

(3) The preliminary report of the consolidated working plan for all forests in the West Khandesh Division and the unorganised scrub areas of the Sakri, Pimpalner and Dhulia Talukas was approved by the Chief Conservator subject to the remarks made by the Collector of West Khandesh on the limitation of the number of cattle to be admitted in each ranch. The necessary data were collected by the end of the year.

(4) A scheme for the exploitation of forests in the Akrani was drawn up by the Divisional Forest Officer, Working Plans, Central Circle. Under this scheme besides concentrating on fire protection 3 coupes are to be worked—one at either end of the Dara-Dhadgaon Road and the third near the Narbada river.

(5) Under instructions from the Conservator of Forests, Central Circle, the Divisional Forest Officer, Working Plans, Central Circle, prepared a special scheme for rotational grazing in the Shirpur East Range to reduce the high incidence of grazing caused by the influx of cattle from the surrounding Indian States.

(6) The revision of the Gund Working Plan continued during the year and is reported to be nearing completion. Certain details in connection with the revision of the Kalinadi slopes working plan were discussed and settled. Field work in regard to (1) the Mundgod Teak Pole Plan and (2) the consolidated plan for all the teak pole and scrub forests of the Dharwar-Bijapur Division was completed.

(7) A cent. per cent. enumeration of sandalwood trees in the forest of Sirsi-Siddapur Range of the Kanara Eastern Division was undertaken with a view to drawing up a working plan for these sandalwood tracts. Enumeration over an area of about 27 square miles was completed.

Besides the above (1) the working plan for the Peint and adjoining forests and (2) the working plan for the Igatpuri forests are under revision.

The revision of the working plan for the Tulshi forests is still held up pending decision by the Bombay Corporation of the question of including in it the municipal forests in the Vihar catchment area.

(*b*) *Control of working plans.*

The prescriptions of the existing sanctioned working plans were followed as far as possible, unavoidable deviations being regularised with the sanction of competent authorities. Several coupes remained unsold, due as usual to lack of demand, poor quality of tree growth, inaccessibility or long lead.

While the teak pole coupes of the Satpuda working plan fetched better than normal prices, the coupes in the Timber Working Circle of the same plan remained unsold for lack of communications.

Exploitation in the Pasture working circle of the Poona Working plan is confined to the removal of dead, dying and fallen trees. In sub-block F of only 4 out of 22 felling series, dead, dying and fallen trees were sold. The remaining series either did not contain trees fit for removal or in the absence of demand were not sold.

The prescribed casuarina coupe of the year in the Alibag Range of the Kolaba Division was not clear-felled owing to extensive erosion. Selected trees from coupes 14, 15 and 16 Pt. were, however, sold as fishing stakes and fetched a handsome price.

2. Communications and Buildings.

(a) *Roads and bridges.*

New earth roads 105⅜ miles in length were constructed in the Central Circle and some additions were made to the Mastinalla causeway in the Southern Circle. The total expenditure incurred on new works in all the circles was Rs. 9,306 against Rs. 17,087 in the previous year. Repairs to about 1,100 miles of roads and bridle paths were carried out at a cost of Rs. 39,140 and in addition Rs. 41,241 were paid to the M. & S. M. Railway Co., as maintenance charges of the Alnawar-Dandeli Railway, the expenditure on similar items in the previous year being Rs. 40,863 and Rs. 37,983 respectively.

The following roads in the Northern Circle, which have been administratively and technically sanctioned, have been proposed to be financed from the Petrol Fund and will be undertaken on the allotment of the requisite funds :—

(1) Ozar-Saiwan Road (30·90 miles).
(2) Khardi-Parali (Tembha-Parali Section 7 miles).
(3) Washala-Dolkhamb Road (7·35 miles).

In East Khandesh the construction of the following roads has been proposed as they will open up new forests and contribute thereby an addition of Rs. 3,000 to 4,000 to the annual revenue :—

(1) Mohomandali-Haripur,
(2) Haripur-Wagzira, and
(3) Usmali-Gadria.

These roads will be undertaken as and when funds permit.

An estimate amounting to Rs. 41,277 for carrying out essential repairs to Hatgad-Wani Road administratively approved by Government awaits technical sanction and allotment of funds.

(b) *Buildings.*

The total expenditure on the construction of new buildings in all the circles was Rs. 32,025 against Rs. 28,233 in the previous year. Repairs to existing buildings were carried out at a cost of Rs. 17,547 as compared with Rs. 19,584 in the previous year.

Though the expenditure on new works shows an increase, the need for housing accommodation for forest subordinates is still keenly felt in certain bad climate localities.

(c) *Miscellaneous (other works).*

A total expenditure of Rs. 1,226 was incurred on new works such as wells and compounds, etc., as against Rs. 1,030 in the previous year. The existing works of this nature were repaired at a cost of Rs. 3,763 as against Rs. 3,423 in the previous year.

3. Protection of Forests.

(*a*) *General protection* (Form No. 57).

The following table compares the number of forest offences during the year under report with those of 1936-37 and the average of the past 3 years :—

Class of offence.	1937-38. Northern Circle.	Central Circle.	Southern Circle.	Total.	1936-37.	Average of 1934-35 to 1936-37.
I. Injury to forest by fire ..	795	502	262	1,559	1,457	1,600
II. Unauthorised felling or removal of forest produce.	5,467	5,409	1,338	12,214	12,388	11,651
III. Unauthorised grazing ..	2,539	2,185	403	5,127	5,664	5,169
IV. Other offences ..	1,296	919	374	2,589	2,720	2,733
Total, 1937-38 ..	10,097	9,015	2,377	21,489	..	....
Total, 1936-37 ..	9,421	10,109	2,699	....	22,229	....
Average of 1934-35 to 1936-37 ..	9,537	8,706	2,910	....	..	21,153

The total number of offences showed a decrease of 740 offences compared with the figures of last year, and the Central and Southern Circles contributed thereto. The Northern Circle showed an increase of 676 offences. This increase occurs mainly in East Nasik and to a lesser extent in East Thana and West Nasik.

Injury by fire.—The Northern and Central Circles recorded an increase of 131 and 12 cases while the Southern Circle showed a decrease of 41 cases as compared with the previous year. Causes of forest fires have been discussed under "Protection from fire".

Unauthorised fellings.—There was on the whole a decrease of 174 cases from last year. It is shared by the Central and Southern Circles which showed a decrease of 366 and 236 cases, which is partially counterbalanced by an increase of 428 cases in the Northern Circle.

The increase in the Northern Circle is attributed to the fact that by the abolition of grazing fees, the subordinates in the Nasik Divisions were able to devote more time to patrolling work. The Divisional Forest Officer, East Thana, reports that looting of forest is carried out on such a heavy and organized scale along the border line of the Ahmednagar district that these forests will be depleted of valuable stock, if not totally ruined, unless efforts are made to check this. While searching for stolen material as many as 1,350 pieces were discovered and attached involving 201 persons in the Nasik district and 41 in the Nagar district.

The decrease in the Central Circle is contributed by all the divisions except Satara and Kolaba. The increase in the latter divisions is attributed to greater vigilance on the part of the subordinates.

The warning given to the Bhils in Jalgaon through the District Superintendent of Police, East Khandesh, had a good effect and resulted in a decrease in the number of offences under this head in East Khandesh.

The four depôts opened in the Kolaba Division as a preventive measure against illicit cutting of fuel and wood for agricultural implements were continued during the year but at two depôts only was there anything like a good demand. Few agriculturists availed themselves of the opportunity of purchasing the wood for agricultural implements and fuel at these depôts.

During the year there were 2 cases of assault on forest subordinates—one in the Chowk Round and the other in Pen Range of the Kolaba Division. The former case resulted in acquittal for want of sufficient evidence, while in the latter the accused was let off with a warning. Two similar cases of the previous year—one in which a forest guard was assaulted and the other in which the forest guard committed the offence of causing simple hurt to a villager were decided in the Southern Circle. The former ended in the acquittal of the villager for want of sufficient evidence and in the latter the forest guard concerned was bound over for good behaviour for one year.

The decrease in unauthorised fellings reported in the Southern Circle is attributed to the fact that much time of the subordinates was taken up with the refunding of grazing fees, which interfered with effective patrolling and to the effect of instruction in villages on the value of forests to the community and on the extent of the privilege rules, resulting in a better appreciation on the part of the villagers of these important matters.

Unauthorised grazing.—As compared with the previous year the number of offences under this head shows a decrease of 537 cases. All the circles contributed thereto. The number of cases in the Satara Division showed an increase which was due to the misunderstanding (which has since been removed) of the people that all forest areas were thrown open to all cattle on the abolition of grazing fees. The reasons for the decrease in the number of cases in other areas were that

(1) warnings were first issued before recording the offences and (2) the various lectures and other propaganda work done by the officers and the staff had a good effect in lessening the tendency of the people to graze their cattle illicitly.

Other offences.—The number of offences under this head on the whole shows a decrease of 131 cases as compared with that of the previous year. The Northern Circle showed an increase of 156 cases but it is more than counterbalanced by a decrease of 287 cases in the Central Circle, the figure for the Southern Circle remaining unchanged. The increase in the Northern Circle was shared by East Thana, West Thana and East Nasik Divisions. As the majority of the cases under this head consist of breaches of transit rules, no reasons for the variations can be ascribed.

Two hundred and seventy-seven new cases were taken to court during the year. 273 cases (including 151 pending from the last year) were decided and of these 246 or 90 per cent. ended in conviction of the offenders.

Out of 19,648 cases compounded during the year, compensation amounting to Rs. 69,278 was recovered in 16,328 cases or an average of Rs. 4·2 per case as against Rs. 4·5 in the last year. In 761 cases the offenders were let off with a warning and 3,375 cases remained undetected.

(*b*) *Fire Protection.*

The following table compares the results of two fire seasons, 1st June 1936 to 31st May 1937 and 1st June 1937 to 31st May 1938. These figures do not tally with those in Form No. 58 which are for the financial year ending 31st March 1938 :—

Circle.	Fire season of	Area attempted to be protected.	Failures.	Area actually protected.	Percentage of area actually protected.	Cost.	Cost per square mile protected.
		Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Rs.	Rs.
Northern ..	1937–38 ..	2,677	100	2,577	96·3	6,850	2·3
	1936–37 ..	2,605	60	2,545	97·7	5,303	2·1
Central ..	1937–38 ..	3,837	227	3,610	94·1	7,442	1·9
	1936–37 ..	3,918	144	3,774	96·3	9,039	2·4
Southern ..	1937–38 ..	971	27	944	97·2	7,520	8·0
	1936–37 ..	966	27	939	97·2	8,223	8·8
Total ..	1937–38 ..	7,485	354	7,131	95·2	21,812	3·06
	1936–37 ..	7,489	231	7,258	96·9	22,565	3·1

Northern Circle.—Compared with the figures of the past year there has been an increase in the area burnt, all divisions except East Nasik contributing thereto.

In the Panch Mahals where the increase in the area burnt is the most marked, the people did not take the same amount of special care for the preservation of grass as they did last year—the year of scarcity. Some fires were started by cattle thieves for clearing paths. In some parts of the Thana District, poachers set fire to the forests in order to facilitate poaching, particularly in the Tansa catchment area, where there is a dense growth of grass in deserted village sites and where it is difficult to control fires. In this locality prompt assistance in putting out fires is not available and by the time the villagers from a distance turn out, a fire once started overruns a large area. A case of illicit shikar by some villagers has been taken to court and it is pending decision. If it ends in conviction, it is hoped that the incidence of fires may decrease since illicit shikar and fires are closely related. Experiments to raise tree crops in blanks in the Tansa area are in progress.

Central Circle.—The total area burnt during the fire season ending 31st May 1938 was 227 square miles as against 144 square miles in the previous season. The causes for the increase are chiefly :—

1. Careless use of fire by persons passing along roads and cart-tracks through the forests.

2. External fires crossing the fire traces in the Satpuda forests of East Khandesh.

3. Large quantities of grass left on site as not being required to the same extent as in the previous season when there was scarcity, and finally

4. the preservation from injury of rosha grass which is sold annually for distillation precluded attempts at early burning in the North Khandesh Division.

Southern Circle.—Though there is no change in the area burnt in the Circle during the two fire seasons still there was an increase in Kanara Eastern Division which it is reported was due to a drier and consequently longer and more dangerous fire season. On the other hand there was a decrease in the Belgaum Division and this is attributed to early burning and better protection work done by the subordinates.

About 468 acres of plantations were burnt in Eastern Division, Kanara, as against 272 acres of the preceding year. Fires in plantations do untold injury and a badly burnt plantation left to itself can never produce a crop of great value. Money and time have to be spent on cutting back injured stems. More often than not the result after cutting back is a cluster of coppice shoots and this in turn means that more money and time are required for further cultural operations. There is not only loss of increment but an unnecessary prolongation of the time required for a plantation to grow beyond danger of serious fire injury,

and the special precautions against fire have to continue for a longer period. Fires cannot always be kept out of plantations even where the counter measures adopted are excellent, but generally they can be checked with proper protection. The Conservator of Forests, Southern Circle, considers that fire protection is not sufficient everywhere in his Circle and that more money will have to be set aside for this important work. The extra expenditure will not be a waste.

Turbans to the value of Rs. 150 were distributed amongst Patils and Kamgars as a reward for good fire protection in the Mandvi Range. Similarly turbans worth Rs. 27 were presented to the villagers and village officers who rendered conspicuous help in fire protection in the East Thana Division.

In the Central Circle villagers in a few instances were warned for bad fire protection.

(*c*) *Protection from cattle*—(Forms Nos. 60 and 61).

The forest areas open and closed to grazing were as under :—

	Square miles.	Per cent.
Closed to all animals for the whole year	1,316	10·1
Closed to all animals for part of the year	329	2·5
Open to all animals except browsers for the whole year	8,534	65·8
Open to all animals except browsers for part of the year	160	1·2
Open to all animals for the whole year	2,641	20·4
Total ..	12,980*	100·0

*Excludes area of over one square mile submerged in the Bhandardara lake.

The area open to grazing for horned cattle throughout the year was 87 per cent. The reduction in the period of closure from 10 to 5 years was continued in the three Thana and Panch Mahals divisions, except where forest growth was retarded by fires. In other parts closure was relaxed wherever necessary e.g., in the Bijapur District and Parasgad Taluka of the Belgaum District, where all closed coupes older than 3 years were opened and cutting of grass from all closed areas was allowed owing to scarcity conditions.

The total recorded number of cattle admitted to graze was 1,996,950 as against 2,329,582 in the previous year and 2,337,783 average of the past 3 years. Of the cattle admitted 1,558,143 were horned cattle, 427,596 sheep and goats and 11,191 others.

The decrease in the number of cattle is attributed to the fact that no accurate record of animals which grazed in the forests after receipt of Government orders postponing the collection of and subsequently abolishing, grazing fees was available in several divisions.

A notable event of the year was the abolition in August of grazing fees for all cattle except those coming from Indian States and other provinces. The grazing fees which had been collected before Government orders

postponing collection were received, were ordered to be refunded. The amount of such collection and subsequent refunds are as under :—

Circle.	Amount of grazing fees collected.	Amount refunded during the year.	Amount remaining to be refunded at the close of the year.	Balance.
	Rs.	Rs.	Rs.	Rs.
Northern	77,838	66,681	5,810	5,347
Central	1,56,350	1,18,604	10,227	27,519
Southern	40,070	37,955	497	1,618
Total ..	2,74,258	2,23,240	16,534	34,484

The amount in the last column represents fees recovered for cattle from Indian States and other provinces numbering 27,803 as well as arrears for years previous to the year under report.

The number of cattle impounded during the year was 82,463 as compared with 94,502 in the previous year. The Northern and Central Circles recorded a decrease. In the former it is attributed to the fact that owing to the postponement of the grazing fee collection and non-issue of free permits for some months, the cattle found grazing without permits were not impounded. In the Central Circle the decrease is chiefly due to impounding only such cattle as actually trespassed into closed areas after repeated warnings. In the East Khandesh Division, where the decrease is most noticeable, a warning system was introduced at the Collector's request in the hope of securing spontaneous co-operation of the people. According to this system a trespasser detected for the first time allowing cattle to trespass in a closed area is given a written warning. If detected committing the same offence a second time, the offence is recorded in the offence register and proceedings are taken under the Forest Act, the concession of being let off with a warning to be given only once during the year. As said above the system worked well.

The Southern Circle showed an increase which was due to the fact that owing to a wrong impression created among the villagers that the new rules permitted grazing of cattle anywhere in the forest, whether open or closed, cattle were driven into closed areas and in consequence were impounded.

(*d*) *Protection against injuries from natural causes—Vegetable pests.*

(*i*) *Creepers and climbers.*—Creeper and climber cutting was carried out as usual through the medium of subordinates except in some cases in the Northern Circle where contractors also did this work.

(*ii*) *Prickly pear.*—Prickly pear in the Poona and Satara Divisions of the Central Circle and in whole of the Southern Circle has practically all been destroyed by the agency of the cochineal insect. In a few places in the Southern Circle, however, fresh young shoots of this pest are still visible. The insects are not now swarming and the progress of the new growth of prickly pear will be watched.

(*iii*) *Loranthus spp.*—Loranthus was kept under control in Kanara Western Division by removing and burning the affected stems or branches of trees.

(*iv*) *Lantana.*—No land was given out for cultivation in the Poona Division on condition of eradicating lantana.

Animal pests.

Rats, hares, porcupines, monkeys, *nilgai* and *sambhar* were responsible as usual for certain amount of damage in plantations in the Northern and Southern Circles. In addition to the above, elephant, bison, *cheetal* and wild pig did much damage in the Southern Circle. In Eastern Division, Kanara, particularly, the damage done by bison, *sambhar* and *cheetal* is on the increase and special measures to combat it are being devised. Damage by elephants has become serious in the area between Tatwal and Nersol. Attempts are being made in Kanara Western Division to kill porcupine by poisoning with potatoes treated with arsenic and also by granting rewards at Re. 1 per porcupine killed.

In the Gotegali plantation 42 treated potatoes were eaten within one month and 7 porcupines were found dead, similarly in the Kerwadi plantation 8 potatoes were eaten but the actual number of porcupine killed is not known. The experiment cost Rs. 2 and porcupine damage in the plantations experimented upon decreased. This method of treatment will be extended to other plantations where porcupine damage is serious.

Insect pest.

In the North and East Thana Divisions, the teak defoliator caused considerable damage to the young teak plantations all over the division and also to the older trees. In the case of older trees, the inflorescence was killed outright and no fertile seed was produced with the result that the division had to depend on other divisions for the supply of teak seed. The matter is under investigation by the Forest Entomologist, Dehra Dun, and the necessary preliminary data are being collected to facilitate enquiry when he visits the area.

Damage by Cockchafer grubs to teak seedlings was observed in East and West Thana.

Tiwas (*Ougeinia dalbergioides*) in some parts of the North Thana Division had also an insect attack, but investigation by the Forest Entomologist to whom 2 damaged sections out of a dead seedling were sent showed that the roots were infected by a fungus identified as *Ganoderma lucidum*—a common root parasite.

The Ravlook cricket (*Brachytrypes achatinus*) did considerable damage in Arge casuarina plantations in Kanara Western Division. Defoliators also did some damage to young teak plantations in all the Kanara Divisions.

A large number of *Shorea talura* trees were found dead in the Sirsi-Siddapur Range of Kanara Eastern Division. It was noticed that they were attacked by a borer. *Larvæ* were sent to the Forest Entomologist, who stated that the species was new to his collection and was possibly *Massicus venustus Pasc.* (*Cerambycidæ*) or closely allied to it. He advised on the control measures to be adopted and called for further specimens to make sure of the identity.

Frost and erosion.

There was no damage through frost. There was less damage by erosion to the casuarina plantations in Akshi and Nagaon in the Kolaba Division than in the previous year. Some erosion occurred in the poorer parts of the Dharwar-Bijapur Division.

A severe North-East cyclone uprooted a number of trees and damaged the crowns of hundreds of others in parts of the North Thana Division in the last week of September 1937. The damaged trees have been marked for exploitation.

CHAPTER III.

SILVICULTURE.

1. System of Management.

The area in charge of the Forest Department aggregates 10,729 square miles of which 7,696 square miles are organised under various silvicultural systems as detailed below :—

Silvicultural system.	Area in square miles.	Percentage of the total area.
1. Clear felling	2,748	25·6
2. Selection	456	4·3
3. Uniform	331	3·1
4. Improvement	606	5·6
5. Selection-cum-improvement	426	4·0
6. Coppice with standards	974	9·1
7. Simple coppice	518	4·8
8. Other	1,237	11·5
9. Combination of clear felling and improvement felling	400	3·7
Total under silvicultural systems ..	7,696	71·7
Protection, grazing and unorganized	3,033	28·3
Grand total ..	10,729	100·0

2. General Progress of Regeneration and Afforestation.

(a) *Mainly natural.*

The total area under natural regeneration both concentrated and not concentrated was 58,923 acres as against 62,893 acres in the last year and was distributed as under :—

Circle.	Acres.
Northern	23,878
Central	19,489
Southern	15,556
Total ..	58,923

(*i*) Concentrated.

Northern Circle.

Panch Mahals.—As fuel species are as valuable as teak in the Panch Mahals Division, greater attention was given to the sowing of *babul* (*Acacia arabica*), *khair* (*Acacia catechu*) and *nimb* (*Azadirachta indica*) along with teak stumps. Out of 204,514 plants raised 154,076 plants were reported to be surviving on 31st March 1938. The total area of rab patches regenerated during the year was 178 acres. The cost of regeneration was Rs. 1,780.

Thana Divisions.—The planting of teak stumps and the sowing of teak and suitable *injaili* seeds on rab patches in the newly exploited coupes were carried out as usual. The results are as below :—

Division.	Total area of coupes regenerated.	Total area of rabs and kiln sites regenerated.	Number of rab patches or kiln sites prepared and planted with teak stumps or dibbled with seed.	Number of germinations and additional transplants put out.	Survivals on 31st March 1938.	Cost of regeneration.
	Acres.	Acres.	Nos.	Nos.	Nos.	Rs.
North Thana ..	2,883	414	4,080	507,126	430,450	6,380
East Thana ..	2,658	175	4,002	881,226	290,085	2,741
West Thana ..	2,446	321	5,066	761,024	601,027	3,332

Stump planting was resorted to on a larger scale than usual, but owing to the late advent of the monsoon many of the stumps died. Fresh stump plants were therefore put in but their growth was not as vigorous as in the case of those which had been put in just prior to the setting in of the rains.

"Semi nursery rabs" referred to in the last year's report, were prepared on a large scale to provide stumps.

In parts of the West Thana Division where teak formed over 20 per cent. of the crop about 25 per cent. of the rab area was sown, as usual, with valuable *injaili* (jungle wood) species, e.g., *ain* (*Terminalia tomentosa*), *khair* (*Acacia catechu*), *babul* (*Acacia arabica*), *tiwas* (*Ougeinia dalbergioides*) and *shiwan* (*Gmelina arborea*).

East Nasik.—Teak, *babul* (*Acacia arabica*), *sisum* (*Dalbergia latifolia*), *bibla* (*Pterocarpus marsupium*) and *shiwan* (*Gmelina arborea*) were sown on rabs in the Teak Working Circle and also to a small extent in the scrub Working Circle.

The grant of land under the agri-cum-forestry system was continued as a result of which there was an addition of 1,016 acres to the area brought under this system. At the close of the year, there were in all 497 plot holders against 420 in the previous year. This year mixed species such as *anjan* (*Hardwickia binata*), *nimb* (*Azadirachta indica*), *khair* (*Acacia catechu*) and *tamarind* (*Tamarindus indica*) were tried, *babul* (*Acacia-arabica*) being confined to specially favourable localities. Densely growing *babul* lines were thinned.

West Nasik.—Natural regeneration in the exploited coupes was supplemented by dibbling of teak seed on rabs and also by transplanting and stump planting. Out of 119,648 seedlings, only 93,999 survived.

Surat Sub-Division.—Stump planting was resorted to on burnt patches aggregating 59 acres. Seeds of various *injaili* species and bamboos (*Dendrocalamus strictus*) were sown in nurseries. Germination was good on the whole, but was affected in some places by deficient rainfall. The survival rate on the whole was satisfactory except for bamboo seedlings among which casualities were heavy.

Central Circle.

Coppice growth, especially of teak, was fairly good in all the divisions except Kolaba where it was retarded by an attack of defoliators in the second half of the rains. Natural regeneration was supplemented by artificial regeneration of teak and other valuable *injaili* species such as *tiwas* (*Ougeinia dalbergioides*), *khair* (*Acacia catechu*), *dhavda* (*Anogeissus latifolia*), sandalwood, etc., on burnt rabs and kiln sites. Teak was raised by sowing treated seed and planting stumps. Germination was fairly good except in West Khandesh where sown rabs compared unfavourably with those stump planted. Failures were made good by transplants. In the Kolaba Division nearly all the seedlings and

stump plants were stripped of their leaves by defoliators. Though this attack caused very few casualties the seedlings and the stump plants took a good deal of time to recover from the damage, and consequently their growth was below normal. Many plants were also destroyed by locusts in some coupes of Roha Range.

The results of germinations and survivals in all the divisions are as under :—

Division.	Number of germination and transplants of root and shoot cuttings put in.	Bamboos.	Survivals.	
	Teak.		Teak.	Bamboo.
East Khandesh ..	76,604	....	26,986	....
North Khandesh ..	101,087	....	72,822	....
West Khandesh ..	109,229	....	72,653	....
Poona	90,048	396	54,217	129
Kolaba	1,126,189	80	853,070	58
Satara	114,508	1,156	37,013	594

Stump planting, which proved very successful is being followed in all the divisions.

Agri-cum-forestry was continued in Roha and Nagothna ranges and extended to other ranges of the same Division where 26 coupes as against 22 in the previous year were regenerated by this system. In some places, the *nagli* (hill millet) crop was damaged by caterpillars and for this reason the cultivators were paid in cash for their labour in raising teak. In the Dhulia range of the West Khandesh Division this system was tried in the *anjan* (*Hardwickia binata*) forests, but the experiment was not a marked success as most of the plot-holders neglected their plots. Similarly in the Dhebewadi range of the Satara Division this system proved a failure as the villagers were not interested in the work.

In the West Khandesh Division attempts were made, with hopeful results, to raise *sawar* (*Bombax malabaricum*) seedlings on unburnt ground and on nursery beds. These were later on transplanted on rabs between rows of teak.

Southern Circle.

An area of about 757 acres of teak pole and fuel coupes in the Kanara Northern Division was under natural regeneration by means of stool shoots, suckers and self-grown seedlings. This was supplemented by sowing and stump planting of teak, sandalwood and valuable junglewood species as *matti* (*Terminalia tomentosa*), *honne* (*Pterocarpus marsupium*),

over an area of 63 acres. In the Kanara Eastern Division 326 acres were subjected to natural regeneration, supplemented by sowing and planting of teak over an area of 30 acres. Natural regeneration by coppice of *matti* (*Terminalia tomentosa*), *honne* (*Pterocarpus marsupium*), *kindal* (*Terminalia paniculata*), *jamba* (*Xylia xylocarpa*) over an area of 1,191 acres of the fuel coupes and Soppinhosalli High Forests of the Kanara Western Division was supplemented by artificial regeneration of 463 acres by planting teak stumps and teak seedlings. 3,088 acres of teak pole and fuel forests of the Belgaum Division were under natural regeneration by coppice. Sowing of teak seed and planting of stumps over 22 acres were done, and sandalwood seed was dibbled under cut lantana. Out of 9,508 acres of exploited coupes in the Dharwar-Bijapur Division, 9,425 acres were under natural regeneration by coppice and seed, the remaining 83 acres were subjected to artificial regeneration by planting of teak stumps and sowing of seeds of *nimb* (*Azadirachta indica*), *anjan* (*Hardwickia binata*), *sersal* (*Albizzia lebbek*), *tugli* (*Albizzia amara*) and sandalwood. The general condition of regeneration area in the Circle was satisfactory.

(*ii*) Not concentrated.

In the Panch Mahals Division blanks, not regenerated with rabs, were sown with *babul* (*Acacia arabica*), *khair* (*Acacia catechu*) and *nimb* (*Azadirachta indica*) in lines 18′ apart with successful results. *Babul* (*Acacia arabica*) was sown under the agri-cum-forestry system in 10 coupes covering an area of 206 acres with successful results. Dibbling of teak, *anjan* (*Hardwickia binata*), *nimb* (*Azadirachta indica*), and *babul* (*Acacia arabica*) in pits and furrows was continued in the East Nasik Division with fair success. Dibbling of sandalwood seed under bushes was considerably extended and outside forest *malki* owners were encouraged to dibble the seed in their hedges.

Sandalwood was dibbled in the North Khandesh, Poona and Satara Divisions with satisfactory results except in Satara. Seeds of *kashid* (*Cassia siamea*), *jambul* (*Eugenia jambolana*), mango (*Mangifera indica*), *pisa* (*Actinodaphne hookeri*) and *hirda* (*Terminalia chebula*) were sown in the Satara Division with satisfactory results. Silver oak, cypress and casuarina were also tried in exploited coupes but without success. Attempts to introduce bamboo (*Dendrocalamus strictus*) and *shikekai* (*Acacia concinna*) in the Mahableshwar Range proved a failure.

Dibbling of sandalwood seed under bushes was carried out in the Dharwar-Bijapur Division. In the Belgaum forests in some areas where the natural regeneration of sandalwood was deficient, this species was introduced artificially.

(*b*) *Mainly artificial.*

162 acres of the Fuel Working Circle of the Dhond Range, Poona Division, and 45 acres of exploited babul coupes of the Transpurna and Jamner and Edlabad Babul Working Plan in the East Khandesh Division

were successfully regenerated with *babul* (*Acacia arabica*). 261 acres of babul forest above flood level were given out for cultivation under the agri-cum-forestry system in the Poona Division, but the results were disappointing. For this partial failure poor rainfall and lack of proper co-operation by the cultivators were equally to blame.

The following table gives the areas in Kanara Northern Division, Eastern Division and Western Division which were regenerated with teak on an intensive scale :—

	Working Plan.	Area planted.	Spacing.
		Acres.	
1.	Bhagwati High Forest Working Plan ..	79	12′ × 6′
2.	Supa High Forest Working Plan	198	9′ × 9′
3.	Gund Working Plan	53	9′ × 9′
4.	Nagzari Working Plan	50	9′ × 9′
5.	Revised Working Plan for Nersol Slopes High Forests	32	9′ × 9′
6.	Revised Working Plan for the Yellapur-Mundgod Teak High Forests	354	9′ × 9′
7.	Ramanguli-Ankola High Forests	126	12′ × 6′
	Total ..	892	

About 46 acres of plantations in the Virnoli Range were burnt, and nearly 11,000 teak plants were damaged. The damaged plants were cut back and the regrowth is progressing well. Similarly 2 acres of plantation in Kulgi Range were burnt but the damage is negligible. The general condition of the plantations in Northern Division, Kanara, is good. Owing to poor "burns" in some of the clear felled areas of Kanara Eastern Division, the results were disappointing. The monsoon was also not favourable. In spite of these adverse conditions, the plantations in series I, IV and V are promising.

75 acres of the Revised Working Plan for the Casuarina plantations in Western Division, Kanara, were regenerated with casuarina raised in wet nurseries—the spacing adopted being 12′ × 12′.

16 acres of regeneration area No. 12 in the Nagargali Range in the Belgaum Division were artificially regenerated with 18,660 stumps. The plantation is promising.

(*c*) *Afforestation.*

There was no afforestation done during the year.

3. Tending of the Growing Stock.

Northern Circle.—In the Panch Mahals Division cleanings were carried out according to the sanctioned programme. Arrear thinnings were done at a cost of Rs. 4,036 while the revenue derived from this source amounted to Rs. 19,426. In the 3 Thana Divisions first thinnings were carried out in 295 coupes of which 226 coupes were sold standing for Rs. 23,875, 60 coupes were worked departmentally and 4 coupes in West Thana were worked by villagers who were permitted to take the resultant material in lieu of wages.

The following table gives the number of coupes in the Thana Divisions in which II and III thinnings were carried out according to the prescriptions of the revised working plan and the revenue realised therefrom :—

Division.	Number of coupes sold.			Price realised.		
	II thinning coupes.	III thinning coupes.	Total.	II thinning coupes.	III thinning coupes.	Total.
				Rs.	Rs.	Rs.
North Thana ..	40	70	110	37,123	50,532	87,655
East Thana ..	32	60	92	21,223	29,541	50,764
West Thana ..	27	49	76	22,891	20,840	43,731
Total ..	99	179	278	81,237	1,00,913	1,82,150

50 coupes in East Thana and 32 coupes in West Thana remained unsold.

In the West Nasik Division, cleanings were carried out in 2 coupe at a cost of Rs. 10 and silvicultural thinnings in 16 coupes in Harsu and Barhe ranges at a cost of Rs. 242. The thinnings in Barhe Range produced 6,425 poles which remained unsold. The thinnings done at a cost of Rs. 115 in coupes Nos. 8 and 28 of block XIV and Nos. 21 to 25 of block XV of Peint yielded a revenue of Rs. 378.

Five-year old coupes in the Surat Sub-Division were cleaned at a cost of Rs. 368. Out of the 17 coupes 5 were thinned departmentally and the remaining sold for Rs. 2,248.

Central Circle.—Thinnings in coupes 3 and 4 in 9 Teak Pole series of Chopda and Yawal ranges cost Rs. 280 and yielded 1,620 timber pieces and 291 cartloads of fuel of which 37 timber pieces and 219 cartloads fetched Rs. 158. Cutting back operations were carried out by guards in coupes 14 and 15 of the Anjan Felling Series I to XXIII in the Raver Range and of the 73 cartloads of resultant material 60 cartloads fetched Rs. 30. Thinnings in 7 coupes of the Scrub Working Plan cost Rs. 120 and the resultant material fetched Rs. 129.

Thinning and cutting back operations were carried out over an area of 621 acres in North Khandesh at a cost of Rs. 280. In the Poona Division weeding and tending of plantations were carried out in most of the exploited coupes under regeneration. Thinnings and cleanings on an extensive scale were done in 119 and 52 coupes respectively in the Main and Fuel Working Circles of the Poona Working Plan. *Watpad* operations for the exploitation of dead, dying and windfallen *babul* trees were departmentally carried out wherever necessary throughout the Fuel Working Circle at a cost of Rs. 3,371 and the revenue realised by the sale of the material from these operations and from thinnings and cleanings was Rs. 12,287.

In the Kolaba Division weedings were carried out in current and in one-year old coupes partly departmentally and partly by the *kumriwallas* (shifting cultivators) who did the work free of cost. The expenses of departmental working amounted to Rs. 1,191. Cleaning operations were done in all coupes 2 to 4 years old and also in 7-year old coupes which had missed the 5th year cleaning. Some coupes were cleaned by the villagers who took the resultant material and wherever there was no such material available, the work was paid for in cash, the payments amounting to Rs. 566. Out of 105 coupes worked under the old coppice with standards system and 32 arrear coupes, 47 remained in arrears ; 23 were sold for Rs. 427, 23 were worked departmentally and 33 were thinned by the villagers in return for the resultant material, and 11 needed no thinning. The resultant material of 10 departmentally worked coupes fetched Rs. 163. 103 coupes, 10 to 15 years old, were thinned departmentally at a cost of Rs. 1,588 and 6 through the agency of the villagers in return for the resultant material. he material from departmental thinnings in 93 coupes fetched Rs. 4,649. In the Satara Division thinnings considered silviculturally desirable, though not prescribed in the working plan, were carried out at a cost of Rs. 106 and the material obtained therefrom fetched a revenue of Rs. 456.

Southern Circle.—Cultural operations were carried out wherever necessary and climbers, etc., were cut by subordinates while patrolling the forests. Improvement fellings were undertaken in 11 compartments in Kanara Northern Division ; 7 in Kanara Western Division ; 1 in Belgaum Division and 4 coupes in Dharwar-Bijapur Division.

Thinnings were carried out in 802 acres of Teak Pole and 170 acres of High Forest Plantations in the Kanara Northern Division ; in 665 acres of High Forest Plantations and 12 old Teak Pole coupes in Kanara Eastern Division ; 154 acres of Casuarina and 1,825 acres of High Forest and Fuel Coupes Plantations in Kanara Western Division ; 2 Teak Pole Coupes and 332 acres of High Forest and Fuel Coupes Plantations in the Belgaum Division and in 8 coupes in the Dharwar-Bijapur Division. The revenue realised was Rs. 15,431 against an expenditure of Rs. 6,319 the net profit being Rs. 9,112. Some material from thinnings in the Kanara Eastern and Western Divisions remained unsold at the close of the year.

Areas artificially regenerated during the past 20 years were closely examined to decide whether the attention they had received during this period was adequate or not. It was realised that the intensity of thinnings was not sufficient and that plantations were being left too long before receiving the first thinning and between subsequent thinnings. The Chief Conservator led the investigation and demonstrated methods to the staff by personally undertaking a number of sample thinnings in different parts of the Circle. This movement received a further stimulus from the visit of the Inspector General of Forests, India, and before the year was out there was a marked increase of interest on the part of all ranks throughout the Circle in the matters of earlier, heavier and more frequent thinnings of the growing stock. Thinning programmes to bring all work up to date according to the standards considered suitable, were drawn up for each division and the amount of work already done in this direction is a credit to the Divisional Forest Officers concerned.

With this object in view, the Divisional Forest Officer, Working Plans, S. C., was deputed to examine and report on the condition of all the important plantations in the Circle. He visited plantations in 20 localities. His report was received after the close of the year and is under consideration. The question of cleanings also received consideration during the year with the result that they will in future be much heavier in those localities in which they were found hitherto to be insufficient.

CHAPTER IV.

EXPLOITATION.

(*a*) Systems of Management.

(i) *Major Forest Produce* (*Form No.* 63).

The various systems of exploitation and the areas worked under each are given in Chapter III under (*i*) " System of Management ".

Major forest produce was extracted in the Northern Circle almost solely through the agency of purchasers. In the Central Circle departmental operations were confined to extraction of fuel for the Government firewood depôts at Mahableshwar, Panchgani, and Matheran. In the Southern Circle all material either for sale in lots or conversion into sawn material was extracted departmentally or through the agency of contractors from most of the High Forest areas, while waste wood left *in situ* and the standing crop in some of the High Forest compartments and Pole and Fuel coupes were sold to purchasers Sandalwood was extracted departmentally and brought to the depôts for conversion and sale. Essentially silvicultural operations, such as early thinnings, were carried out departmentally in most cases.

(ii) *Minor Forest Produce* (*Form No.* 64).

Minor forest produce was as usual farmed out in all the Circles. Hirda was collected in the Rajur Range as hitherto, on the "quota" or share system. The total collection amounted to 71 *khandis*, 8 *maunds* and 5 *payalis* and it was sold by tender at Rs. 1-12-5 per bag of 20 *payalis*, the revenue realised from this source being Rs. 1,522-3-0 as against the rate of Re. 1 per bag and the total realisation of Rs. 1,068-12-0 of the previous year. No other expenditure except the cost of advertisement for sale amounting to Rs. 18 was incurred. Grass and grazing fetched Rs. 4,68,921 against Rs. 6,77,541 in the previous year. But out of this amount Rs. 2,39,774 was subsequently ordered to be refunded (of which Rs. 2,23,240 was actually refunded by end of March 1938 leaving Rs. 16,534 still to be refunded) on account of abolition of grazing fees leaving a net return of Rs. 2,29,147. The decrease of Rs. 4,48,394 as compared with last year is due to introduction of free grazing as announced by Government in September 1937.

(*b*) Agency of Exploitation.

(i) *Departmental Agency.*

The following is a comparative statement of major and minor produce extracted departmentally during the two years 1937–38 and 1936–37 :—

Circle.	Year.	Major Forest Produce. Timber C. ft. in thousands.	Fuel C. ft. in thousands.	Total C. ft. in thousands.	Sandalwood value.
					Rs.
Northern	1937–38 ..	142	500	642	..
	1936–37 ..	85	454	539	..
Central	1937–38 ..	91	457	548	330
	1936–37 ..	115	485	600	1,667
Southern	1937–38 ..	550	13	563	1,20,816
	1936–37 ..	672	2	674	96,405
Total ..	1937–38 ..	783	970	1,753	1,21,146
	1936–37 ..	872	941	1,813	98,072
Difference ..		−89	+29	−60	+23,074
Percentage of total out turn from all sources ..		12·5	2·1	3·3	100

Circle.	Year.	Minor Forest Produce. Bamboo value.	Grass and grazing value.	Other value.	Total value.
		Rs.	Rs.	Rs.	Rs.
Northern	1937-38 ..	18	..	..	18
	1936-37 ..	18	..	..	18
Central	1937-38 ..	..	..	1,647	1,647
	1936-37 ..	..	..	1,069	1,069
Southern	1937-38 ..	15	..	23	38
	1936-37 ..	20	..	75	95
Total ..	1937-38 ..	33	..	1,670	1,703
	1936-37 ..	38	..	1,144	1,182
Difference ..		−5	..	+526	+521
Percentage of total outturn from all sources ..	....	..	..	..	..

Northern Circle.—The sawn timber held in stock at the Nasik Road Timber Depôt was all sold during the year and this partly accounts for the increase under "Timber". The outturn from the thinning coupes worked departmentally in the Panch Mahals, and North and East Thana was greater than that of the previous year and accounts for the increase under "Timber" and "Fuel".

Central Circle.—Departmental operations were restricted to the supply of fuel and manufacture and supply of charcoal to Government fuel depôts and to silvicultural operations including the *watpad* operations in the Poona Division. The decrease under "Timber" and "Fuel" is therefore accounted for by the working of fewer coupes departmentally as there was less demand. The consumption of firewood at Matheran is decreasing owing to the increased use of charcoal. As there was a large stock of fuel in hand at the Malcompeth Depôt, extraction was restricted to 100 stacks only.

Southern Circle.—The decrease under "Timber" is due partly to the unsatisfactory progress of work by some of the logging contractors in Kanara Northern Division and partly to the fact that all the High Forest Compartments in Kanara Eastern Division were sold standing instead of being worked departmentally. The material of a larger number of thinning coupes in the Dharwar-Bijapur Division being chiefly fuel accounts for the increase under fuel.

The value (Rs. 96,405) of sandalwood shown in 1936–37 was, as stated in the last year's report, only an estimate. Owing to the very low bids offered by the combine of sandalwood merchants no sale of the Kanara and Dharwar-Bijapur sandalwood was effected during the year 1936-37. This 1936-37 material was subsequently sold in 1937-38 for Rs. 79,317. The value of the Belgaum 1936-37 sandalwood was Rs. 16,780, making the total for the 1936–37 material Rs 96,097. The value received for 1937-38 material was Rs. 1,20,816. This shows a considerable increase which is due to some disagreement and consequent competition between the two main sandalwood merchants and to the introduction of the method of retail sale. The retail sale rates were fixed in accordance with the rates obtaining in other territories and in spite of these rates being appreciably higher than the prices received or offered in the previous two or three years, there was a brisk demand. Retail sales were allowed to proceed until a few months before the date of the usual annual auction sale and were then discontinued.

Timber Depôts.—All sawn wood held in stock in the Nasik Road Timber Depôt was sold during the year under report. The average prices obtained in this and the 4 Government Depôts in the Southern Circle are given in the following table :—

Average rate per khandy of 12·50 C.ft.

Kind of timber.	Dandeli.		Kodibag.		Kirwatti.	
	1937–38.	1936–37.	1937–38.	1936–37.	1937–38.	1936–37.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Teak (*Tectona grandis*) ..	25 15 0	25 15 5	21 4 7	19 3 8	25 1 1	24 8 9
Matti (*Terminalia tomentosa*) ..	11 4 7	12 0 10	12 8 10	10 11 2	10 6 10	10 15 0
Nana (*Lagerstræmia microcarpa*)	10 2 10	13 7 4	..	..	..	..
Honne (*Pterocarpus marsupium*)	13 10 0	13 14 2	11 8 2	10 3 8	..	15 9 3
Sissum (*Dalbergia latifolia*) ..	11 6 9	11 4 5	13 3 10	13 12 1	6 8 9	9 5 4
Karimutal (*Ougeinia dalbergioides*).	16 1 2	16 1 9	..	..	19 2 8	26 3 10
Heddi (*Adina cordifolia*) ..	11 5 1	12 14 11	..	..	10 4 9	8 6 1
Other jungle wood	10 1 10	11 14 6	..	..	..	..
Teak battens	18 0 4	19 14 2	..	..	..	..
Teak scantlings	23 1 6	22 5 4	..	..	..	..
Teak planks	10 10 8	38 0 9	..	..	..	

Average rate per khandy of 12·50 C. ft.

Kind of timber.	Katur.		Nasik.	
	1937-38.	1936-37.	1937-38.	1936-37.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Teak (*Tectona grandis*) ..	26 3 0	25 4 0	....	....
Matti (*Terminalia tomentosa*) ..	9 6 7	11 13 1	....	....
Nana (*Lagerstroemia microcarpa*) ..	....	....	....	....
Honne (*Pterocarpus marsupium*) ..	....	15 5 4	....	....
Sissum (*Dalbergia latifolia*) ..	10 14 6	15 5 10	....	....
Karimutal (*Ougeinia dalbergioides*).	....	....	....	....
Heddi (*Adina cordifolia*) ..	11 10 10	....	....	....
Other junglewood	....	....	....	....
Teak battens	....	....	10 2 6	6 4 0
Teak scantlings	....	....		21 14 0
Teak planks	....	....	....	21 4 0

At the Dandeli Depot, where most of the material is sold, the prices for teak remained steady at last year's level. No improvement in the market was apparent and none is anticipated in the near future. The variations between the prices for other species were due to the more or less general drop in the market for junglewoods. There was better demand for sawn timber except teak battens for which competition was poor. At the other depots the slight variations in prices recorded were due to small differences both in the quality and quantity of material offered for sale.

Of the three fuel depots in the Central Circle viz. Matheran, Malcompeth and Panchgani, the first was run departmentally, the second continued to be managed by the Department to the end of December 1937, after which date it was handed over to a contractor. The Panchgani depot and also the 6 depots in the Kanara Western Division of the Southern Circle were worked through contractors.

(ii) *Purchasers.*

The following table compares the outturn of major and minor produce removed by consumers and purchasers during the years 1937–38 and 1936–37 :—

Circle.	Year.	Major Forest Produce.				
		Timber.		Fuel.		Sandal-wood value.
		C.ft. in thousands.	Value.	C.ft. in thousands.	Value.	
			Rs.		Rs.	Rs.
Northern ..	1937–38..	2,730	14,06,873	8,290	21,521	..
	1936–37..	2,653	14,37,866	8,004	19,077	..
Central ..	1937–38..	875	3,37,257	5,393	65,958	..
	1936–37..	966	3,78,852	4,635	76,789	..
Southern ..	1937–38..	1,747	5,14,036	5,711	1,86,832	..
	1936–37..	1,618	4,26,311	4,655	1,79,725	..
Total ..	1937–38..	5,352	22,58,166	19,394	2,74,311	..
	1936–37..	5,237	22,43,029	17,294	2,75,591	..

Circle.	Year.	Minor Forest Produce.			
		Bamboos value.	Grass and grazing value.	Other minor forest produce. value.	Total value.
		Rs.	Rs.	Rs.	Rs.
Northern ..	1937–38..	18,741	1,26,328	30,773	1,75,842
	1936–37..	7,473	1,81,531	39,162	2,28,166
Central ..	1937–38..	13,664	3,02,523	40,866	3,57,053
	1936–37..	13,028	4,15,002	35,171	4,63,201
Southern ..	1937–38..	65,922	863	39,939	1,03,724
	1936–37..	47,173	81,008	27,750	1,55,931
Total ..	1937–38..	98,327	4,29,714	1,11,578	6,36,619
	1936–37..	67,674	6,77,541	1,02,083	8,47,298

Northern Circle.—The increase in the volume of timber is due partly to the fact that the coupes sold in the Panch Mahals, West Thana and East Thana Divisions were better stocked than those of the previous year, but mainly to the transfer of the Surat Sub-division from the Central to the Northern Circle.

The revised method of selecting trees for felling in the III thinning coupes in the 3 Thana Divisions whereby sound trees were not marked and the poor growth in the gurcharan coupes in the North Thana Division account for the decrease in the value under timber.

The sale of trees from woodland plots in the West Thana Division, the better prices realised for fuel coupes in the East Nasik Division and the addition of the revenue from the sale of fuel coupes in the Surat Sub-division were responsible for the increase in value and volume under fuel.

There was a brisk demand for bamboos in the North and West Thana Divisions and hence there was an increase under " Bamboos " ; abolition of grazing fees is solely responsible for the decrease under " grass and grazing " ; while the decrease under " other minor forest produce " was due to the fact that the figures of the last year under this item included the outstandings of the year before and also to the low prices for *timbru* (*Diospyros melanoxylon*) leaves in Panch Mahals and *anjan* (*Hardwickia binata*) leaves and *mhowra* (*Bassia latifolia*) flowers in East Nasik.

Central Circle.—This Circle shows a decrease under timber, an increase under fuel and a decrease in the value realised. The decrease under timber was due to the transfer of the Surat Sub-division and this cause coupled with a dull market was responsible for the decrease in value. The increase in volume of fuel was due to better stocking of coupes sold.

Due to a greater demand for bamboos in East Khandesh, there was an increase under this head. Greater demand for fencing posts, better prices obtained for *hirda* (*Terminalia chebula*), and *babul* (*Acacia arabica*) pods in the Poona Division and also for *hirda* (*Terminalia chebula*) and *shikekai* (*Acacia concinna*) in the Satara Division, the increased sale of *mhowra* (*Bassia latifolia*) seed due to a good crop and keen competition and better prices for the three years' contract of *kadhai* (*Sterculia urens*) gum and *apta* (*Bauhinia racemosa*) and *temburni* (*Diospyros melanoxylon*) leaves, account for the increase of revenue under " other produce". The decrease under " grass and grazing " was caused by the abolition of grazing fees.

Southern Circle.—The increase in the quantity and value of both " timber " and " fuel " are due to the greater number of coupes and compartments sold standing in Kanara, E. D. and W. D.

There was an appreciable improvement in the bamboo market. The decrease in the value of " grass and grazing " is due to the abolition of grazing fees. Better prices realised for some minor produce farms especially for that of *hirda* (*Terminalia chebula*) and *shikekai* (*Acacia concinna*) in Belgaum and Kanara, N. D. contributed to the increase under " other produce."

(iii) *Rights, Privileges and Free Grants.*

The following is a comparative statement of the quantity and value of forest produce removed by right and privilege holders and free grantees during the years 1937–38 and 1936–37 :—

Circle.	Agency.	Major Forest Produce.				Minor Forest Produce.			
		Timber.		Fuel.		Bamboos value.	Grass and grazing value.	Other minor produce value.	Total value.
		C.ft. in thousands.	Value.	C.ft. in thousands.	Value.				
			Rs.		Rs.	Rs.	Rs.	Rs.	Rs.
Northern ..	C ..	..	..	7,767	1,76,853	71,591	10,67,516	1,27,460	12,66,567
	F ..	10	7,013	...	..	80	..	224	304
Central ..	C ..	..	..	9,287	2,27,127	..	1,73,614	1,98,114	3,71,728
	F ..	17	7,202	4	160	160	55	44,470	44,685
Southern ..	C ..	59	12,602	9,255	1,14,053	3,763	3,59,905	50,951	4,14,709
	F ..	48	12,779	..	..	444	..	5,043	5,487
Total 1937–38.	C ..	59	12,602	26,309	5,18,033	75,354	16,01,125	3,76,525	20,53,004
	F ..	75	19,981	4	160	684	55	49,737	50,476
Total 1936–37.	C ..	129	21,408	25,266	8,41,954	76,149	15,27,641	4,78,213	20,82,003
	F ..	72	28,550	3	341	1,078	5,489	9,390	15,957

C = Concessionists. F = Free grantees.

The only recognised rights are those of way. Villagers enjoyed as usual, the various privileges allowed under settlements, local rules and other Government orders. The quantity of forest produce removed in exercise of such privileges varies annually according to the requirements of the privilege holders.

Free grants of timber and other forest produce were given in all deserving cases for the construction of houses destroyed or damaged by fire, construction of and repairs to temples, churches, *chavdis*, schools and other works of public utility. A free grant of timber worth Rs. 652 was given to 54 families whose houses were burnt in a big fire which occurred on 18th April 1936 in Jalgewadi in the Satara Division of the Central Circle.

(c) Outturn and Sources of Forest Produce.

The outturn from all sources of forest produce during the two years 1937–38 and 1936–37 compares as follows :—

Circle.	Year.	Major Forest Produce.			Minor Forest Produce.		
		Timber C.ft. in thousands.	Fuel C.ft. in thousands.	Sandal-wood value.	Bamboos value.	Grass and grazing value.	Other minor produce value.
				Rs.	Rs.	Rs.	Rs.
Northern ..	1937–38 ..	2,882	16,557	..	90,480	11,93,844	1,58,457
	1936–37 ..	2,747	15,150	..	79,082	12,60,244	1,63,369
Central ..	1937–38 ..	983	15,141	330	13,824	4,76,192	2,85,097
	1936–37 ..	1,101	14,369	1,667	13,040	5,97,835	3,47,429
Southern ..	1937–38 ..	2,404	14,979	1,20,816	70,144	3,60,858	92,956
	1936–37 ..	2,462	13,985	96,405	52,217	3,52,592	80,032
Total ..	1937–38 ..	6,269	46,677	1,21,146	1,74,398	20,30,894	5,36,510
	1936–37 ..	6,310	43,504	96,405	1,44,939	22,10,671	5,90,830
Difference ..	....	—41	+3,173	+24,741	+29,459	—1,79,777	—54,320

The total expenditure on management of State forest was :—

Circle.	1937–38.	1936–37.
	Rs.	Rs.
Northern	1,36,503	1,26,295
Central	81,716	97,371
Southern	4,11,100	5,27,287
Total ..	6,29,319	7,50,953

CHAPTER IV-A.

THE FOREST ENGINEERING BRANCH.

The work done by the Forest Engineering Branch is as under:—

1. Surveys.

Nil.

2. Designs and Drawing Work.

	Project.	Division.	Nature of work.
	Northern Circle.		
1.	Special design for a Kacheri building at Ahwa.	Dangs	.. Plans and estimate.
2.	Low level causeway with Hydraulic calculations.	Do.	.. Do. do.
3.	Wells	Do.	.. Do. do.
4.	Katcha quarters for the Chief Instructor, Government Technical School, Ahwa.	Do.	.. Do. do.
5.	Katcha Rest House and outhouses ..	Do.	.. Do. do.
6.	Two guards lines at Goima and Mandvi.	Do.	.. Do. do.
7.	Drainage works on Waghai-Bhawandgad road.	Do.	.. Do. do.
8.	Crossing over Mulchand Nala ..	Do.	.. Do. do.
9.	Buildings at Bassien	West Thana	.. Do. do.
10.	Two guards' line at Kandivali ..	Do.	.. Do. do.
11.	Quarters for one forester and 2 guards, Vada.	Do.	.. Do. do.
12.	Quarters for the Range Forest Officer, East Vada.	East Thana	.. Do. do.
13.	Katcha Rest House and outhouses ..	Panch Mahals	.. Do. do.
	Central Circle.		
1.	Wire fencing for Jejuri kuran ..	Poona	.. Estimate.
2.	Quarters for Range Forest Office clerk and 2 orderlies at Chinchpada.	West Khandesh	.. Plans and estimate.

	Project.	Division.	Nature of work.
	Southern Circle.		
1.	Quarters for subordinates at Supa ..	Northern Division, Kanara.	Inspection of site and plans and estimate.
2.	Dismantling and moving Fowler mill from Mandurli to Dandeli.	Do.	.. Estimate.
3.	Proposed alterations to garage at Dandeli.	Do.	.. Inspection, plan and estimate.
4.	Repairs to Tamange ghat road ..	Do.	.. Inspection and estimate.
5.	Sinking a well in the compound of Forester's quarters at Sirsi.	Eastern Division, Kanara.	Plan and estimate.
6.	Guards' naka at Lalguli	Do.	.. Do. do.
7.	Special repairs to Range office building at Yellapur.	Do.	.. Do. do.
8.	Bridge in mile No. 1 of Katur-Bomanhalli road.	Do.	.. Do. do.
9.	Range office at Katur	Do.	.. Plans and estimate and supervision.
10.	Proposed new bungalow at Mundgod	Do.	.. Revision of plan and site inspection.
11.	Well at Anilgod	Western Division, Kanara.	Plans and estimate.
12.	Well at Arbail	Do.	.. Do. do.
13.	Quarters for 1 clerk, 2 guards and post office at Nagargali.	Belgaum	.. Site inspection, plans and estimate.
14.	Providing ceiling over bed room, hall and office room of Ranger's quarters at Gujnal.	Do.	.. Plan and estimate.
15.	Forest Naka and quarters for 2 guards at Nandgad.	Do.	.. Plans and estimate.
16.	Latrine at Gokak	Do.	.. Do. do.
17.	Wire fencing round the compound of the Range office at Nagargali.	Do.	.. Estimate.
18.	Additions and alterations to sandalwood shed at Dharwar.	Dharwar-Bijapur	.. Plans and estimate and supervision.

In addition to the above the Forest Engineer inspected the following works and submitted reports on some of them :—

1. Culvert at 0/3 mile on Anshi-Yermukh road.
2. Labourers' chawl at Dandeli for proposed improvements.
3. Dandeli dispensary do. do.
4. Additions to Mastinalla causeway.
5. Proposed Malgi-Kurli road.
6. Site for Kurli Rest House.
7. Culverts on Gunjawati-Kyatnali road.
8. Culvert No. 51 on Kadra-Shivpur road.

3. Construction.

The Forest Engineer continued the general supervision over the construction of an open seasoning shed at Dandeli, repairs to the quarters for the temporary engineering staff, installation of an additional bench at the Dandeli sawmill, repairs to Myres pump at Kirwatti, additions to the Sandalwood shed at Dharwar and the construction of the Range office at Katur. He also aligned and extended skidding tracts in the Nagzari valley for the tractor working on log extraction.

4. Forest Exploitation.

(*a*) *Mechanical skidding.*

Timber extraction work was carried on in series XI, compartment 22 with the Fordson skidder from 9th November 1937 to 28th May 1938. The total outturn was 1,086·25 tons against 38·66 tons of the previous year. The extraction costs exclusive of overhead charges amounted to Rs. 5-6-3 with an average length of haul of 2,037 ft. In a valley where none of the slopes are easy this year's operations were carried out in an area of exceptional difficulty. The satisfactory results obtained are a credit to the Forest Engineering Branch and in particular to the Skidding Ranger Mr. Narvekar and his crew. The skidding operations were inspected by the Honourable Minister for Revenue, Government of Bombay, the Inspector General of Forests and the Chief Conservator among others, who expressed appreciation of what they saw.

(b) Saw-milling.

1. The following table compares the figures of 1936–37 and 1937–38 output of the Government saw-mill at Dandeli—the only mill that was worked during the year :—

Description of outturn.	1937–38.	1936–37.	Difference.
	C.ft.	C.ft.	
Teak M. G. sleepers	69,972	78,672	—8,700
Teak sawn material	83,470	71,272	+12,198
Junglewood	33	326	—293
Total ..	1,53,475	1,50,270	+3,200

The increase in the total output is due to the working of an additional 36″ circular saw bench during part of the year 1937–38. The railway indent for sleepers ending 31st March 1938 was smaller than in previous years and the outturn of sleepers decreased in favour of sawn wood.

2. The dead stock of the mill was checked with the registers. Unserviceable articles were either repaired or written off under proper authority. The total value of dead stock and stores supplied to the mill was :—

	Rs.
(1) Dead stock	637
(2) Consumable stores	6,450

3. *Progress of saw-milling.*—The following table shows the outturn and the average sawing charges incurred under the head stores, labour and establishment excluding overhead charges :—

Serial No.	Name of saw-mill.	Output during the year.			Average sawing cost per C.ft. stores.		
		1935–36.	1936–37.	1937–38.	1935–36.	1936–37.	1937–38.
		C. ft.	C. ft.	C. ft.	As.	As.	As.
	Southern Circle.						
1	Dandeli saw-mill ..	161,389	150,270	153,475	0·76	0·55	0·67
2	Mandurli saw-mill ..	58,990	50,643	Closed down.	0·72	0·60	Closed down.
3	Kirwatti saw-mill ..	38,705	Closed down.	Do.	0·48	Closed down.	
	Total ..	259,084	200,913	153,475	0·71	0·55	0·67

Serial No.	Name of saw-mill.	Average sawing cost per C.ft. labour.			Average sawing cost per C.ft. Establishment.			Total excluding overhead charges per C. ft.		
		1935-36.	1936-37.	1937-38.	1935-36.	1936-37.	1937-38.	1935-36.	1936-37.	1937-38.
		As.	As.	As.	As.	As.	As.	As.	As.	As.
	Southern Circle.									
1	Dandeli saw-mill ..	2·47	2·46	2·58	0·41	0·43	0·46	3·64	3·44	3·71
2	Mandurli saw-mill ..	1·56	1·42	Closed down.	0·25	0·37	Closed down.	2·53	2·40 (a)	Closed down.
3	Kirwatti saw-mill ..	2·16	Closed down.		0·72	Closed down.		3·36	Closed	(b). down.
	Total ..	2·21	2·19	2·58	0·42	0·41	0·46	3·34	3·15	3·71

(a) The mill was finally closed on 1st February 1937.

(b) This mill was finally closed on 1st November 1935.

Saw-mill trading accounts.—The trading accounts of the Dandeli saw-mill for 1936-37 were audited by the Outside Audit Branch of the Accountant General's Office.

The results of the working of the mill are summarised below :—

Item.	Dandeli Mill.		
	1937-38.	1936-37.	Difference.
	Rs.	Rs.	Rs.
Revenue	2,67,220	2,94,209	—26,989
Expenditure	1,30,050	1,40,022	— 9,972
Net profit	1,37,170	1,54,187	—17,017
Capital at charge	1,11,401	81,934	+29,467
Percentage of net profit on capital ..	123	188	....

The net profit shows a decrease of Rs. 17,017, which is due to the curtailment of the demand for M. G. sleepers by the M. & S. M. Railway, as a result of which a large number of sleepers remained in stock at the close of the year. The valuation of these at cost price is below the amount that could have been realised by their sale to the railway.

A new 3-year contract for teak M. G. sleepers commencing from 1st April 1938 was entered into with the M. & S. M. Railway during the year.

As there is an increasing demand for special sawnwood from the railway and as it is desirable to meet to the fullest possible extent such indents, which are valuable, the question of installing an additional sawing unit at Dandeli is under consideration. The Fowler mill and machinery from the old Mandurli mill site are available for the purpose.

Private saw-mills.—Mr. Sayad Nasroddin Hasansab's mill at Katur in E. D., Kanara, produced 800 M. G. sleepers and 14,360 C.ft. of sawn material against 1,000 M G. sleepers and 13,400 C.ft. of other sawnwood in the previous year.

General.

The activities of the Forest Engineering Branch were not only confined to the work already described. The investigation of suitable woods for picking sticks has been for some time in charge of the Forest Engineer. Trials have been made by the Forest Engineer with various likely substitutes, e.g. *dhamni* (*Grewia tiliæfolia*), *dindal* (*Anogeissus latifolia*), *nandi* (*Lagerstræmia microcarpa*), etc. These Indian made sticks have not hitherto given satisfactory results chiefly on account of fractures. It is hoped to overcome this defect by the use of split instead of sawn sticks. Further tests which are in hand are promising.

2. This subject, as also the development of the jungle wood industry for turnery articles in general and bobbins in particular, also the lamin board and plywood industry is closely connected with the necessity of devising some satisfactory and reasonably cheap method for the artificial kiln seasoning of jungle woods. The construction of a dry kiln capable of fulfilling this need is under experiment at Dehra Dun, and as soon as a satisfactory type is evolved, work on these lines must be commenced at Dandeli.

3. There is a wide opening for the development of the charcoal industry in the Southern Circle. In the absence of suitable labour for this work the Forest Engineer took up the question of bringing into use the "Frikiln" designed at Dehra Dun. By the close of the year the purchase of a sample "Frikiln" from Bombay had been decided on and arrangements for the copying of this sample by local labour will be made by the Forest Engineer.

4. A somewhat similar type of utilization is the destructive distillation of hardwood. A small plant for this purpose has been erected by a private Company near Belgaum. It started work during the year: the quality of the charcoal is stated to be good, but at present the market for the other by-products of the distillation is very poor.

5. Useful experience of treating perishable junglewoods with the preservative "Ascu" under pressure treatment was gained at the Belgaum exhibition, but it is early at present to say what the prospects are for the development of this process on a large scale.

CHAPTER V.

FINANCIAL RESULTS.

(Forms Nos. 68, 69 and 70.)

The revenue and expenditure of the year compare with those of the last year and average of the previous quinquennium 1932-33 to 1936-37 as follows :—

Circle.	Year.	Revenue.	Expenditure.			Surplus or deficit.	Percentage of surplus to gross revenue.
			Conservancy and works.	Establishment.	Total.		
		Rs.	Rs.	Rs.	Rs.	Rs.	
Northern	1937-38..	16,64,934	1,38,080	6,15,436	7,53,516	9,11,418	54·7
	1936-37..	18,04,148	1,30,257	5,88,549	7,18,806	10,85,342	60·2
	Average	18,49,764	1,78,834	5,90,086	7,68,920	10,80,834	58·4
Central	1937-38..	7,85,322	90,327	6,23,971	7,14,298	71,024	9·0
	1936-37..	10,62,310	1,11,603	6,30,147	7,41,750	3,20,560	30·1
	Average	10,82,023	92,484	5,91,238	6,83,722	3,98,301	36·8
Southern	1937-38.	18,49,871	4,11,317	5,91,924	10,03,241	8,46,630	45·8
	1936-37..	18,90,160	5,27,837	5,89,733	11,17,570	7,72,590	40·9
	Average..	21,00,231	6,88,889	5,59,255	12,48,144	8,52,087	40·6
General Direction	1937-38..	12,912	33,083	1,87,042	2,21,024	—2,08,112	..
	1936-37..	12,000	93,946	89,959	1,83,905	—1,71,215	..
	Average..	2,563	1,02,031	72,990	1,75,021	—1,72,458	..
Forest Engineering	1937-38..	2,000	10,751	23,587	34,338	—32,338	.
	1936-37..	2,376	9,659	35,414	45,073	—42,696	
	Average..	2,752	15,312	41,891	57,203	—54,451	.
Total Presidency	1937-38..	43,15,039	6,83,558	20,42,860	27,26,418	15,88,621	36·8
	1936-37..	47,71,684	8,73,302	19,33,802	28,07,104	19,64,580	41·2
	Average..	50,37,324	10,77,550	18,55,461	29,33,011	21,04,313	41·8
Difference between 1937-38 and 1936-37.	....	—4,56,645	—1,89,744	+1,09,058	—80,686	—3,75,959	..

The foregoing statement enables a comparison to be made between the figures of the year, those of the previous year, and also the average figures for the preceding five years. This last set of figures is however of less use for comparative purposes, as it includes the figures for the Dangs for 1932-33.

Comparing the figures of the year with those of the previous year it will be noted that revenue has decreased by 4·6 lakhs of rupees, expenditure has decreased by 0·80 lakhs of rupees, and the surplus has decreased by 3·8 lakhs of rupees to 15·88. The decrease in revenue was chiefly due to the decision of Government that in future no fees for grazing in forest should be levied in the Province. This made it necessary to refund Rs. 2·40 lakhs which had already been collected under this head, and to abandon all claims to the amount still due, viz. Rs. 2·08 lakhs or 4·48 lakhs in all. This sum is the difference between last year's income of Rs. 6·77 lakhs and the revenue actually credited this year Rs. 2·29 lakhs. Other large items to be noted were a decrease of B expenditure in the General Direction division of ·6 lakhs of rupees, due to a reduction in interest charges on past Capital outlay. This was however more than offset by an increase of ·98 lakhs under General Direction, establishment. This was due to the inclusion for the first time in the Forest budget of charges incurred by the High Commissioner on account of leave pay to forest officers on leave, and on account of sterling overseas pay.

Taking the figures for each Circle in slightly more detail the following remarks are necessary :—

Northern Circle.—The decrease in revenue is due mainly to the abolition of grazing fees and to a less extent to the introduction of a more conservative method of marking trees for removal in III thinnings in the Thana Divisions. The increase in expenditure is due mainly to the transfer of the Surat Sub-division to this Circle.

Central Circle.—The decrease in revenue was due mainly to the abolition of grazing fees and to the transfer of the Surat Sub-division to the Northern Circle. The decrease in expenditure was also due to this transfer and in addition to a decrease in expenditure on buildings and on repairs.

Southern Circle.—The drop in the revenue is due to the abolition of grazing fees, to decreases in the sale proceeds of timber and in the demand for railway sleepers in Kanara Northern Division, and to the failure on the part of contractors to deliver the prescribed amount of material at Sale depôts. The decrease was to some extent made good by the receipts for the 1936 37 sandalwood of the Dharwar-Bijapur Division credited during the year and by an improvement in the prices for the 1937-38 sandalwood.

The decrease in expenditure was due to the fact that it was found possible to sell standing most of the High Forest timber workings in Eastern Division, Kanara, and also to the failure of departmental contractors in Northern Division and Western Division, Kanara, to deliver the full quantities provided for in their contracts.

The analysis of receipts and expenditure shows that of the receipts 75 per cent. came from major produce, 19 per cent. from minor produce and 6 per cent. from miscellaneous sources; while of the expenditure 24 per cent. was incurred on extension, constitution, improvement and exploitation and 76 per cent. on administrative, executive and protective charges.

The outstandings on account of revenue at the commencement and close of the year were :—

Circle.	On 1st April 1937.	On 31st March 1938.
	Rs.	Rs.
Northern	49,255	47,152
Central	14,055	8,707
Southern	1,99,189	1,73,669
	2,62,499	2,29,528

The outstandings on account of contractors and disbursers were :—

Circle.	On 1st April 1937.	On 31st March 1938.
	Rs.	Rs.
Northern	....	....
Central	40	11
Southern	4,138	4,140
	4,178	4,151

CHAPTER VI.

RESEARCH AND EXPERIMENT.

Research work continued to be under the control of the office of the Chief Conservator the work itself being carried out by the Divisional staff with some assistance from the Working Plans Divisions. The inadequacy of this arrangement, is realised, and the meagre results obtained during past years are proof of it. Little improvement can however be expected until Bombay, like the remaining provinces of India, appoints a special research officer. The Divisional Forest Officers took up for investigation problems of purely local interest under the control of their respective Conservators.

Natural Regeneration.

Evergreen Forest.

The three plots laid out last year in the Bombay sub-tropical evergreen forest at Bhimashankar in the Poona Division with the object of studying the effect on regeneration of (1) removal of undergrowth only and (2) removal of undergrowth and opening of the canopy, were inspected during the year but it is too early yet to record any results.

Artificial Regeneration.

Hirda (*Terminalia chebula*).

Subject No. 37.—Sowing and planting of *hirda* on laterite soil in the shade of existing shrubs or small trees. (Poona and Satara Divisions).

Two new plots were selected in the Budhele catchment area Vadgaon Range in the Poona Division. In plot I, *hirda* seed was sown in 100 pits, 3 seeds in each pit. The sowing had to be repeated in this plot as the seed originally sown was eaten by white ants. In plot II, 100 transplants were put. Weedings were carried out in July and September. The survivals to end of January 1938 are reported to be as follows :—

Plot No. I	15 seedlings.
Plot No. II	60 transplants.

In the Mahableshwar Range of the Satara Division *hirda* seed was sown in 100 pits, 2 seeds in each pit, during the rains of 1937. Twenty-eight seeds germinated out of which 21 are reported to be surviving in March 1938, the average height of the seedlings being 2 inches. The stump planting had to be deferred owing to the seedlings in the nursery being too small and weak and this work will be taken up in the rains of 1938.

Tending, Thinnings and Cleanings.

Teak (*Tectona grandis*).

Subject No. 24.—Effect of different degrees of thinnings in teak plantations (Kanara, Northern Division, Eastern Division and Western Division).

The next remeasurement is due in 1940-41.

Subject No. 34-A.—To determine the intensity of thinning most suitable for pure teak rabs at intervals laid down in the revised Thana working plan (West Thana Division).

Four plots have been laid out in Salsette Range of the West Thana Division for the purpose of determining the intensity of thinning most

suitable for pure teak rabs at intervals laid down in the revised Thana working plan, i.e. 11th, 26th, 46th and 66th years. The plots have been numbered 34A/A, B, C and D, and the treatment applied is as follows :—

Plot A—unthinned (control).
" B—thinned to " B " grade.
" C—thinned to " C " grade.
" D—thinned to " D " grade.

The thinnings were carried out in December 1937 after the initial measurements were recorded. Remeasurements are to be taken every fifth year.

Subject No. 34-B.—To ascertain rate of growth of teak in plantations under different spacings (Dangs, Surat).

Two sets of 8 plots each one in Dagdiamba plantation near Subir, North Dangs, and the other in Waghai, South Dangs, are under observation for studying the rate of growth in teak plantations thinned to different espacements. The plantations, when the plots were formed in 1935, were 7 years old. The plots were thinned in January 1935 as below :—

Plots 1 and 5 .. .. 6′ × 6′ (control)
" 2 and 6 .. .. 9′ × 9′
" 3 and 7 .. .. 12′ × 12′
" 4 and 8 .. .. 15′ × 15′.

The first remeasurement in these plots was taken in January 1938 and the results are given below :—

Average annual increment per tree.

Plots.	1 and 5.	2 and 6.	3 and 7.	4 and 8.
North Dangs (Dagdiamba)	·58″	·76″	1·37″	1·41″
South Dangs (Waghai)	·52″	·78″	1·29″	·71″

The percentage of girth increment for the several plots is as follows :—

Plots 1 and 5 .. .. 21·72 per cent.
" 2 and 6 .. .. 28·72 "
" 3 and 7 .. .. 39·97 "
" 4 and 8 .. .. 22·90 "

The above figures indicate that an average spacing of 12′ × 12′ is more advantageous in early years so far as girth increment is concerned.

Miscellaneous Species.

Subject No. 16.—Effect of improvement fellings on diameter growth (Dangs, Surat).

The next measurements are due in December 1938. During the year the plots were inspected and the numbers and cross marks on the trees were repainted.

Miscellaneous.

Sandal (*Santalum album*).

Subject No. 7.—Annual girth increment of sandal (Belgaum and Dharwar-Bijapur Divisions).

Triennial measurement of girth in plots 7A-I to 7A-IV was carried out in May 1937.

The average girth increment per tree per annum for the whole plot from the date of formation up to the last date of measurement is given in the following statement :—

Plot No.	Girth increment in inches per tree per annum.			
	1928.	1931.	1934.	1937.
7A-I	·20	·11	·14	·09
7A-II	·18	·13	·11	·07
7A-III	·23	·22	·19	·09
7A-IV	·19	·13	·10	·07

N.B.—Only those trees registering an increase in girth have been taken into account in arriving at the increment figures.

Subject No. 32.—Correlation existing between the outer girth increment and heartwood increment of sandal (Dharwar-Bijapur Division).

The next measurements and borings in these plots are due in 1938-39.

Phenological Observations.

Phenological observations on teak were continued during the year on sets of 5 trees in each of the Panch Mahals, North Thana, North, East and West Khandesh and Kanara, Northern Divisions. Copies of the records were sent to the Silviculturist, Forest Research Institute, Dehra Dun, after the close of the year.

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ENTEROLOBIUM TIMBOWA (*Mart*) (*from the Argentine*).

The last year's survival at Mahableshwar is flourishing and has attained a height of 2'-8".

TUNG (*Aleurities fordii*).

All the surviving plants in the teak pole coupes of block VI, Sambrani Range and at Tatwal died in the course of the year due to drought.

In the fresh wet nursery made at Bomanhalli the seed was sown 1' apart in raised unmanured beds. The nursery was fenced, well protected and kept clean of weeds. The seed was watered twice a day. Germination commenced from 26th February 1937 and continued till the end of October, by which time there were 114 plants. Since the growth of these plants was very fast and they were getting congested in their original beds, the nursery was extended and 63 plants were taken out very carefully so as not to cause any damage to the roots and transplanted 3' apart in the extension instead of the distance of 2 feet recommended. In the original beds also an endeavour has been made to keep a spacing of 3' between 2 plants. The transplants were watered in order to assist them to establish themselves. The plants in the original bed, however, were not watered.

Out of a total of 114 germinations, 13 seedlings succumbed between November and March and the remaining are doing well. The maximum height is 71" and average 51".

CHLOROPHORA EXCELSA (*from Uganda*).

A quarter lb. of seed of *Chlorophora excelsa* was received from the Silviculturist, Dehra Dun, in August 1937, for trial. The seed was tried in East Thana, East Nasik, West Nasik, North, East and West Khandesh and Kanara Northern and Eastern Divisions, but was not successful except in Kanara, Northern Division, where experiments were carried out in four different localities, i.e., Kulgi, Virnoli, Sambrani and Haliyal Ranges. The number of seed sown and other details are given below :—

——	Kulgi.	Virnoli.	Sambrani.	Haliyal.
Date of sowing.	16th August 1937 and 30th August 1937.	10th September 1937.	28th August 1937.	31st August 1937.
Number of seeds sown.	500	548	1,000	800
Date of germination.	24th September 1937.	25th October 1937.	9th September 1937.	25th September 1937.
Number of germinations.	40	41	882	242
Maximum height ..	6"	3"	6"	7"
Condition ..	Healthy ..	Fair ..	Very healthy ..	Healthy.

The seeds were sown in baskets and planted out when of suitable size. The seedlings in Sambrani Range were planted out in the "Tung" (*Aleurites fordii*) nursery where they are sheltered from the sun and watered twice daily. The condition of the plants of Sambrani is very good while of those at Kulgi, Virnoli and Haliyal is fair. Transplanting will be done early in June and the method of transplanting will be the same as that for teak.

Sample Plots.

Plots Nos. 11, 12 *and* 13, *Narayanpur Block, Navapur Range. West Khandesh Division.*

These plots were laid out in April 1928 and remeasured in March 1933 and May 1938. Plots Nos. 11 and 12 are 2½ acres each and plot No. 12 was given an improvement felling at the time of formation. Plot No. 13 was clearfelled and patches of teak plantations were made during the succeeding monsoon. During the 10 years the plots have been kept under observation, 33 teak have come up into 6″—12″ class in plot No. 11, 29 prior to 1933 and 4 between 1933 and 1938. In plot No. 12 only 11 teak came up into this class in the first 5 years to 1933 while none came up into the class between 1933 to 1938. It therefore seems that the improvement felling in plot No. 12 fulfilled its function in so far as it concentrated increment upon the larger stems without dissipating soil fertility in producing regeneration. The number of teak removed in the improvement felling in 1928 from this plot was 86. How far a heavier felling would have succeeded in putting on greater increment in the larger girth classes cannot be known, nor how serious is the suppression which has evidently occurred in the smaller girth classes. Plot No. 13 has been left untouched since its plantation patches were formed. It has suffered severely from frost, probably due to the unhealthy condition of the plants in consequence of their congested state. Drastic treatment is necessary here and is being looked into.

Raising of matchwood species.

Northern Circle.—An attempt to raise *savar* (*Bombax malabaricum*) by planting cuttings 6″ to 8″ in girth and 6′ in length was made unsuccessfully, in the Panch Mahals, North, East and West Thana and the Dangs Divisions.

Experiments Carried out by Divisional Forest Officers.

Northern Circle.—(1) The attempt made last year to introduce *Cassia siamea* (*kashid*) on the sites of deserted cultivation in the Tansa catchment area in the East Thana Division, was fairly successful. The plants have grown to an average height of about 6 feet and the grass is almost suppressed. Only one weeding was required to be done in the 2nd year as a precaution against fire damage. Due to paucity of seed much progress could not be made in extending the plantations to other similar areas which carry a dense growth of tall coarse grass.

(2) In order to reduce the fire hazard in clear felled coupes where grass grows in profusion, the Divisional Forest Officer, East Thana, had a 5 feet ring cleared round promising groups of teak coppice in one and two year old coupes. The result is stated to be very satisfactory.

Charcoal.

Southern Circle.—Preliminary work was undertaken in connection with the introduction of charcoal manufacture on a large scale in the forests of the Circle. Two methods of manufacture are available, the ordinary country kiln and the mechanical process. The art of charcoal manufacture is unknown in Kanara and the local people have to be trained. A small batch of men from the coastal tracts of Kanara, Western Division, is being collected and sent to Belgaum to learn the art. After sufficient training these men are to return to their own district to train others of their community.

Side by side with this, attempts to develop charcoal manufacture on a large scale by the mechanical process are also being made. The purchase of a "Frikiln" was sanctioned. The Frikiln has been purchased from Bombay and another is to be made locally in Belgaum. These are to be used for demonstration purposes in suitable localities and for the collection of all necessary data. It is hoped in time to work up large scale charcoal manufacture in the Circle. Suitable raw material is available and there have been two or three important enquiries for charcoal in large annual quantities.

Pollarding *temburni* (*Diospyrus melanoxylon*) trees.

The experiment of pollarding trees for obtaining larger and softer leaves was repeated in the East and West Khandesh Divisions. So far the results have been successful, for the leaves from areas selected for the experiment in East Khandesh fetched Rs. 696 against Rs. 604 in the previous year chiefly due to the better quality of leaf available. In the West Khandesh Division also pollarding has produced softer and larger leaves.

Sheep Grazing.

Plots 28 and 29 Bhamburda Poona Division (South Indian Dry mixed deciduous forest Champion's type VII.)

Two plots of 1 acre each were formed in September 1936 to study the effect of sheep grazing in open forests of this type. After enumeration of all stock of tree species on these 2 plots the area was handed over to the Agricultural Department for their sheep breeding experiments. No sheep were grazed on the area between September 1936 and September 1937, so there is nothing to record this year.

Sandalwood.

Belgaum Division.—With a view to ascertaining the reasons for poor girth increment of sandalwood in the Division, 3 test plots, with 50 selected sandalwood trees in each, have been laid out in 2 different sandalwood localities in Khanapur Range. The trees in these plots are receiving different degrees of intensity of tending drastic, normal and very slight. The comparative effect on the girth increment of the three treatments to free sandalwood from over-head and side interference is being watched.

The experimental sandalwood plantation raised in the years 1934 to 1936 at Nagargali in the Belgaum Division is in excellent condition. The growth is however too dense and there are insufficient hosts. The area is now to be split up into plots each to receive different treatment with respect to spacing, and number and species of hosts.

Kanara, Northern Division. An experimental teak plantation of 1 acre in extent was raised in the unorganised non-teak bearing forest of Khodli in Supa Range by planting 950 stumps. In the Amboli unorganised forest of the same Range four plots of 1 acre each were planted with Casuarina. The results of these operations are satisfactory.

High Forest Seed Collection Plots.

To guard against the possibility of seed of bad origin producing crops of poor quality and type, which characteristics, it is believed, do not appear until many years after formation, steps were taken to provide for a sufficient supply of good high forest teak seed for all future high forest regeneration areas. Hitherto teak seed from pole forest areas collected by villagers without proper supervision, has been used for high forest plantations. Areas containing a good percentage of teak of good quality are to be selected in the High Forest of each Division or Range to ensure a sufficient supply of seed for the year's requirements. An improvement felling is to be done in these areas for the benefit of the best teak and the areas are then to be set aside as the teak seed collection plots. A start has been made in Kanara, Eastern Division, where one good area has already been selected for this purpose.

Varieties of Teak.

During the year a distinct variety of teak was found growing in the Hudsa (Southern Circle) 1924-25 plantation. The strange variety was characterised by a smoother bark, markedly more rapid growth and earlier date of coming into leaf. The origin of the seed was traced back and it was found that the seed of the strange variety came from the Kadra Range where plantations were made in the past with, it is believed, seed obtained from Burma. This variety is growing together with the normal Kanara type in the same plantation. Specimens of leaves and seed of both varieties are being sent to Dehra Dun for botanical comparison while samples of the wood of the two varieties are being sent to the Wood Technologist for examination.

CHAPTER VII.

ADMINISTRATION.

The post of the Chief Conservator was held by Mr. A. C. Hiley, from 1st April 1937 to 11th March 1938 and by Mr. D. B. Sothers from 12th March 1938 to 31st March 1938; and that of the Personal Assistant to the Chief Conservator by Mr. W. E. Pereira, M.B.E., throughout the year.

The territorial Circles were held by the following officers :—

Northern Circle	.. Mr. H. W. Starte, from 1st April 1937 to 17th March 1938.
	Mr. H. P. W. Davis, from 18th March 1938 to 31st March 1938.
Central Circle	.. Mr. J. B. T. Brooks, from 1st April 1937 to 31st March 1938.
Southern Circle	.. Mr. R. W. Inder, from 1st April 1937 to 5th April 1937.
	Khan Bahadur S. N. J. Ratnagar, C.I.E., from 6th April 1937 to 27th September 1937.
	Mr. W. C. de C. Walsh, from 28th September 1937 to 31st March 1938.
Forest Engineering Branch.	Mr. R. V. Alexander, from 1st April 1937 to 21st April 1937.
	Mr. H. C. Holmes, from 22nd April 1937 to 22nd May 1937.
	Khan Bahadur S. N. J. Ratnagar, C.I.E., from 23rd May 1937 to 30th May 1937.
	Mr. H. C. Holmes, from 31st May 1937 to 17th October 1937.
	Mr. W. C. de C. Walsh, from 18th October 1937 to 29th October 1937.
	Mr. H. C. Holmes, from 30th October 1937 to 24th November 1937.
	Mr. R. V. Alexander, from 25th November 1937 to 31st March 1938.

The Divisional charges were held by officers named below :—

Division.	Name of officer.	From	To
Panch Mahals ..	Mr. S. P. Pandya ..	1st April 1937 ..	31st March 1938.
North Thana ..	Mr. G. S. Singh ..	1st April 1937 ..	31st March 1938.
East Thana ..	Mr. J. A. Singh ..	1st April 1937 ..	23rd December 1937.
	Mr. E. K. Kotwal ..	24th December 1937.	17th January 1938.
	Mr. J. A. Singh ..	18th January 1938 ..	31st March 1938.
West Thana ..	Mr. T. K. Mirchandani.	1st April 1937 ..	31st March 1938.
East Nasik ..	Mr. S. N. Kesarcodi.	1st April 1937 ..	31st March 1938.
West Nasik ..	Mr. R. J. Smith ..	1st April 1937 ..	18th May 1937.
	Mr. V. A. N. Sausman.	19th May 1937 ..	2nd October 1937.
	Mr. R. J. Smith ..	3rd October 1937 ..	26th October 1937.
	Mr. V.A. N. Sausman	27th October 1937 ..	31st March 1938.
Working Plans, N. C.	Mr. J. Walker ..	1st April 1937 ..	31st May 1937.
	Mr. E. K. Kotwal ..	1st June 1937 ..	31st March 1938.
Gurcharan Officer, Thana.	Mr. F. X. Saldanha ..	1st April 1937 ..	24th January 1938.
	Mr. H. W. Starte ..	25th January 1938 ..	17th March 1938.
	Mr. H. P. W. Davis ..	18th March 1938 ..	31st March 1938.
East Khandesh ..	Mr. H. J. C. Millett ..	1st April 1937 ..	31st March 1938.
North Khandesh	Mr. A. D. Mufti ..	1st April 1937 ..	20th October 1937.
	Mr. R. P. Dalley ..	21st October 1937 ..	31st October 1937.
	Mr. A. D. Mufti ..	1st November 1937.	23rd December 1937.
	Mr. R. P. Dalley ..	24th December 1937.	17th January 1938.
	Mr. A. D. Mufti ..	18th January 1938 ..	31st March 1938.
West Khandesh ..	Mr. R. P. Dalley ..	1st April 1937 ..	8th March 1938.
	Mr. A. D. Mufti ..	9th March 1938 ..	31st March 1938.
Poona ..	Mr. E. S. B. Tavener	1st April 1937 ..	31st March 1938.
Kolaba ..	Mr. Y. R. Divekar ..	1st April 1937 ..	31st March 1938.
Satara ..	Mr. R. A. Shirali ..	1st April 1937 ..	16th March 1938.
	Mr. R. R. Chaudhari.	17th March 1938 ..	31st March 1938.
Working Plans, C. C.	Mr. E. A. Garland ..	1st April 1937 ..	31st March 1938.

Division.	Name of officer.	From	To
Kanara, N. D. ..	Khan Bahadur S. N. J. Ratnagar, C.I.E.	1st April 1937 ..	3rd April 1937.
	Mr. H. P. W. Davis.	4th April 1937 ..	15th March 1938.
	Mr. R. J. Smith ..	16th March 1938 ..	31st March 1938.
Kanara, E. D. ..	Mr. R. F. Sandeman.	1st April 1937 ..	3rd June 1937.
	Mr. J. Walker ..	4th June 1937 ..	31st March 1938.
Kanara, W. D. ..	Mr. E. T. C. Vas ..	1st April 1937 ..	31st March 1938.
Belgaum ..	Mr. H. C. Holmes ..	1st April 1937 ..	22nd May 1937.
	Khan Bahadur S. N. J. Ratnagar, C.I.E.,	23rd May 1937 ..	30th May 1937.
	Mr. H. C. Holmes ..	31st May 1937 ..	17th October 1937.
	Mr. W. C. de C. Walsh	18th October 1937 ..	29th October 1937.
	Mr. H. C. Holmes ..	30th October 1937 ..	31st March 1938.
Dharwar-Bijapur.	Mr. W. C. de C. Walsh	1st April 1937 ..	28th October 1937.
	Mr. R. J. Smith ..	29th October 1937 ..	16th March 1938.
	Mr. R. A. Shirali ..	17th March 1938 ..	31st March 1938.
Working Plans, S. C.	Mr. H. P. W. Davis ..	1st April 1937 ..	3rd April 1937.
	Mr. F. A. B. Coelho.	4th April 1937 ..	9th January 1938.
	Mr. R. F. Sandeman.	10th January 1938 ..	31st March 1938.

At the close of the year, the number of officers attached to Divisions as Assistants or Sub-Divisional Forest Officers was 10. Of these 2 belonged to Class I and 8 to Class II.

Mr. R. W. Inder, Conservator of Forests, was granted leave preparatory to retirement.

Khan Bahadur S. N. J. Ratnagar, C.I.E., officiating Conservator of Forests and Mr. F. X. Saldanha, Deputy Conservator of Forests and Gurcharan Officer, Thana, retired from service on 28th September 1937 and 25th January 1938 respectively. The title of C.I.E. was conferred on the former in January 1938.

Messrs. S. P. Pandya, T. K. Mirchandani and S. N. Kesarcodi were appointed to officiate in Class I and Mr. L. V. Gonsalves, I Grade Ranger in the Central Circle, was promoted to Class II.

Two prizes of the value of £25 each for 1936 from the Currie Scholarship Fund were awarded to Messrs. J. V. Karamchandani and Hari Singh, Deputy Conservators,

The gazetted forest service cadre remained a joint one for Bombay and Sind and it was decided that this arrangement should remain in force up to 1st April 1942.

SUBORDINATE AND CLERICAL SERVICE.

The 7 Ranger students sent to the Madras Forest College, Coimbatore, for training in the 1935–37 course passed the final examination with Higher Standard Certificate, and one of them Mr. B. D. Nadkarni, with honours, having headed the list of successful students. He and Messrs. N. P. Choksi, S. F. Uppin and D. M. Mannige also carried away several prizes. Two of the 7 students were posted to the Northern Circle, two to the Central Circle and three to the Southern Circle.

Six students were selected for the 1938–40 course.

The Foresters' Class at Mandvi in the Northern Circle was, as usual, conducted by a Ranger. Out of 24 students admitted (14 from the Northern Circle and 10 from the Central Circle) 4 were sent back as it was found that they could not follow the course : out of the remaining 20 students 17 passed the final examination. The annual course for training foresters and guards in the Southern Circle under selected Rangers was continued and 10 out of 11 subordinates passed the test.

The work of the Rangers, subordinate protective and clerical staff is reported to be satisfactory.

One round guard and two beat guards in the East Thana Division were prosecuted by a villager under sections 504 and 352 of the Indian Penal Code, but were acquitted by the Magistrate. These subordinates were given legal assistance.

One beat guard in the North Thana Division was assaulted by some villagers of Pavan in the Dahanu Taluka. The villagers concerned are being prosecuted in the Magistrate's court at Palghar.

The following table shows the casualties and punishments etc. in the three Circles. :—

Particulars.	Northern Circle.	Central Circle.	Southern Circle.	Total.	
				1937–38.	1936–37.
1. Retirements ..	45	35	20	99	69
2. Deaths ..	7	6	12	25	32
3. Resignations ..	13	5	..	18	17
4. Degradations ..	29	18	1	48	51
5. Convictions ..	3	..	..	3	..
6. Dismissals, removals etc.	15	9	4	28	32
Total ..	112	72	37	221	201

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Except at places notorious for bad climate where ill-health is common among the subordinates, the health of the staff was reasonably good. The supply of water bottles to the protective establishment in the Kolaba Division had a good effect in minimising the danger from " guinea worm ".

Measures to Suppress Corruption.

The Government servants' Conduct Rules and circular orders issued thereon were, from time to time, explained to the subordinates and the actions of those suspected of a tendency towards corruption were closely watched. The Divisional Forest Officers and their gazetted assistants scrutinised expenditure, checked measurements of work done and satisfied themselves, by close inspection of as many works as time permitted, that full value is received for the money spent. Encouragement was also given to the public to report freely any action of harassment on the part of the subordinates. All applications including those from anonymous correspondents were promptly enquired into and the subordinates found guilty were suitably dealt with. Six monthly statements showing the cases disposed of or under enquiry are submitted to Government in accordance with their orders.

No complaints regarding short payments or non-payments for camp supplies were received during the year under report.

Inspections and Tours.

The Conservators of Forests inspected all the Divisional Forest offices in their respective circles. No serious irregularities were noticed except in the East Khandesh Division where the office work was found to have been carried on in a very irregular and arbitrary way by the Head Clerk without proper regard to the correct office routine and procedure. Several serious irregularities were noticed, as a consequence of which the clerk concerned had to be removed from his position and ordered to do account work in another division.

His Excellency the Governor of Bombay visited Yellapur and other Kanara forests in May 1937 and also Nagargali in the Belgaum Division.

The Honourable Revenue Minister paid a visit to the Ghodasgaon Wild Life Preservation area in the East Khandesh Division and to the Kanara forests of the Southern Circle and inspected important forest works.

The Inspector General of Forests with the Government of India visited the Kanara forests in the Southern Circle and Thana Forests and Nandgaon agri-cum-forestry plots in the Northern Circle. His inspection note is still awaited.

The Chief Conservator toured in all the circles.

Civil Suits.

Northern Circle.—The second appeal filed by Khan Bahadur Sadwa was dismissed with costs by the High Court at the close of the year. The suit filed by Mr. G. N. Mohite was also dismissed with costs but he has appealed. The suit filed by Messrs. N. V. and A. V. Koparkar was decided and the plaintiffs were declared to be the owners of the teak trees and their aftergrowth in Survey Nos. 122 and 123 of Patgaon, taluka Murbad, and were awarded costs. The decision was acquiesced in by Government.

Central Circle.—The Tambdi Malki Teak case of the Kolaba Division referred to in the last year's report was dismissed with costs. The civil suit filed by Mr. P. D. Billimoria for wrongful dismissal and damages was withdrawn by him with the permission of the court, which awarded Government its own costs.

A fresh suit has been filed against Government and the Divisional Forest Officer, Kolaba, personally by a contractor, Mr. S. N. Pithawala of Bombay, for damages on account of alleged instigation of labourers working in his coupe in the Nagothna Range.

Southern Circle.—Of the two appeals referred to in the last year's report, the one filed by Government is still pending, while in that filed by Mr. A. R. Yellapur, the High Court reversed the decree of the lower court and sent the case back to the trial court for allowing him an opportunity to amend the plaint.

Land Revenue Administration.

The Divisional Forest Officer, West Nasik, continued to function as Assistant Collector and Excise Superintendent of Peint Mahal.

The excise and revenue administration of the Akrani Mahal as well as the revenue administration of Pal and a few other villages in East Khandesh was carried out by the Forest Department as usual. The Raisingpur Estate continued to be managed by this Department under the Court of Wards.

The revenue administration of the Dandeli, Kulgi, Virnoli and Kirwatti Mahals in Kanara, Northern Division, and Eastern Division continued to be in the hands of this Department.

Kumris (Shifting cultivation).

The Divisional Forest Officer, Belgaum, inspected many of the *Kumri* villages in his charge and complaints were enquired into and removed wherever possible. At the request of the villagers of Mendil in the Khanapur Taluka some changes in the original assignment of *Kumri* land for the village sanctioned in Government Resolution, Revenue Department, No. 4755 of 28th March 1927, were proposed and submitted for the sanction of Government through the Collector of Belgaum.

Village Panchayats.

The four panchayats in Kanara, Northern Division, worked satisfactorily.

Some of the 13 panchayats in Kanara, Western Division, do not appear to take sufficient interest in the management of the property entrusted to their care. The Collector of Kanara remarks as follows:—

"Some of the panchayats, viz. the Murur, Halkar, Vannalli, Alvalli and Chitrige panchayat in Kumta taluka appear to be making good progress. On the other hand some panchayats, e.g. Valgalli-Kalkeri-Harodi and Gonehalli in the same taluka have done no work during the last two years. The Prant Officer, Southern Division, is being asked to warn those panchayats to show better progress during the current year. In case they continue to remain inert the question of dissolving them will be considered next year."

Dangs Forest Administration.

Though the Surat Dangs were transferred to the control of the Government of India with effect from 1st July 1933, they continue to be administered by the staff of this Department. His Excellency the Crown Representative, issued orders during the year, terminating with effect from 1st April 1937 the leases entered into by the Bombay Government with the Dangs Chiefs and transferring to the Bombay Government the surplus of revenue from the Dangs to end of March 1937 after which it will form part of the revenues of the Government of India. The conditions governing the loan of services of the Bombay Government staff serving in the Dangs are still to be decided.

Relations between the Forest Department and other Departments.

These continued to be cordial as ever.

CHAPTER VIII.

GENERAL REMARKS.

Over a large percentage of the area under working plans the system of management in the last 20 years has changed from a simple form of selection system, or from coppice with standards to the uniform system combined with a considerable amount of artificial regeneration. Where the selection system is still in force proper attention is now given to the growing stock as a whole and operations are not confined to the removal of mature and marketable trees. The proper tending of these young crops of from 1 to 20 years old under the uniform system is a problem which the department finds of increasing difficulty with every year that passes.

The abolition of the grazing fee has provided the Department with a second problem for which it is urgent to find a rapid solution. The fee charged over the greater part of the more important grazing area was annas 4 per head for bovines. A small fee, but since its abolition it has become apparent that it did have some effect in the control of the number of animals admitted to graze, particularly in those areas where this number had already reached the danger mark. These areas comprise roughly Khandesh, East Nasik, Poona and Satara. In many forests in these areas overgrazing with its accompanying evil of erosion and general deterioration is now going on : the need for some system of control which will prevent the acceleration of this process is urgent.

Bombay unlike nearly every other province in India has no Sylviculturist or research officer to assist the divisional staff with these problems. Nor has Bombay like most other provinces a Utilization officer to provide that very necessary link between the producer of the raw product and the industry which utilises it.

Considerable economies in staff, expenditure and number of Divisions have been effected during the past 15 years, and during the year under report Government ordered that the question of further retrenchment should be considered. The lines on which this retrenchment was to be organised were :—

(1) the amalgamation of 3 Khandesh Divisions into 2,

(2) the amalgamation of Poona and Satara Divisions,

(3) the abolition of 1 Working Plans Division,

(4) the abolition of 1 Gurcharan Officer,

(5) the abolition of 4 Sub-divisional Officers.

Final orders on these proposals were not passed until after the end of the year.

The Department is therefore in the position of having to face an increasing programme of work with a steadily decreasing cadre of gazetted officers. Under these conditions a feeling that the present staff may not be able to carry out successfully all that it would like to do is not entirely unjustifiable.

Apart from the loss of revenue caused by the abolition of the grazing fee the financial results of the year's working were on the whole fair and neither better nor worse than was expected. Markets for most forest products in the Northern and Central Circles were reasonable. In the Southern Circle markets declined somewhat, but were showing an improvement at the close of the year. In so far as business with the M. & S. M. Railway was concerned, an increased demand for teak logs and sawn timber was offset by a decline in the indent for M. G. sleepers. Sandalwood revenue figures show an improvement, though it is doubtful whether any actual rise in the market occurred. The system of retail sales introduced was possibly partly responsible for the increase in revenue realised.

Inforest Cultivation and Inforest Settlements.

A sum of Rs. 19,728 was recovered as assessment in the Northern Circle, while in the Central Circle Rs. 37,963 were recovered from 125 settlements in the Khandesh Divisions against which a balance of Rs. 2,695 is outstanding. Out of the settlements in East Khandesh one in Raver range continued to be deserted. The settlers' crops both in the Northern and Central circles were fairly good. The assessment on lands in the Central Circle was fixed on a permanent basis during the year.

The work of remeasuring the areas in the settlements of North Khandesh was not completed during the year and the question of transferring the completed settlements to the Revenue Department is deferred till 1940 when it will be decided finally.

Out of the total *tagai* (loans for improvement of land) grants of Rs. 4,240 including Rs. 1,800 given in the year and Rs. 2,440 outstandings of the previous year, a sum of Rs. 1,050 was recovered, and the balance of Rs. 3,190 is still outstanding against the settlers in the North and West Khandesh Divisions. No *tagai* grants were given in the Northern Circle and in East Khandesh. From the outstandings of Rs. 131–5–0 of the previous year in East Khandesh, Rs. 69–5–0 were recovered, Rs. 57 being irrecoverable were written off under orders of the Collector and Rs. 5 are still outstanding.

Dalhi (*shifting*) *cultivation.*—The total area, viz., 27,777 acres under *dalhi* cultivation in the Kolaba Division remained unchanged and the total assessment (including the arrears of the past year) collected during the year was Rs. 3,199–8–2 ; Rs. 51–13–0 were remitted in consideration of the total failure of the crop of *nachani* (hill millet) in Bhedasgaon-Kalamboli *dalhi* lands. The outstandings at the close of the year were Rs. 421–4–4.

Forest Advisory Committees.

Northern Circle.—No meetings were held in the Panch Mahals and Thana Districts as there were no subjects for discussion. In the Nasik District one meeting was held on 13th August 1937. Questions regarding (1) the appointment of a propaganda officer for explaining the forest policy of Government and (2) silage making were discussed. Questions raised by some of the non-official members in connection with the reduction of grazing fees, their refund, reduction of the rates of fees fixed for the removal of *anjan* (*Hardwickia binata*) leaves, preservation of *anjan* trees, alleged harassment of persons carrying headloads of firewood for sale were discussed and the exact position in regard to these matters was explained.

Central Circle.—No meeting was held in West Khandesh. The meeting proposed to be held in Jalgaon (East Khandesh) had to be cancelled for want of subjects. One meeting was held at Alibag on 17th December 1937 in which Mr. R. N. Mandlik, M.L.A., proposed that Gavan kuran, which was hitherto sold to the villagers at 3 years' average price, should

be given to them free for grazing. This proposal was passed unanimously and given effect to after the close of the year.

Southern Circle.—Two meetings were held, one in Kanara and the other in the Dharwar District. Of the 3 proposals put up by the non-official members, who attended the meeting of the Dharwar District, two had already been discussed and decided at previous meetings and the third concerning the abolition of grazing fees was under the consideration of Government. Certain further concessions to gun clubs proposed by the Deputy Director of Agriculture were discussed and unanimously approved. It was decided to forward the proposals to the Commissioner.

In all 13 questions were before the Kanara meeting. One was withdrawn and one was beyond the scope of the committee. The remainder were discussed and decided to the satisfaction of the Committee.

During the year under report, Government revised the constitution of these Committees as follows :—

Officials.	Non-officials.
	All members of the Bombay Legislative Assembly from the district not including those whose constituency is larger than the district (if they are residents of the district).
Collector.	
Divisional Forest Officers.	Two members elected by the District Local Board.
An Officer of the Agricultural Department.	A leading agriculturist from each forest division nominated by the Collector.

Wood Distillation.

The Bharat Wood Distillation Factory.—Apart from construction work progress was far from satisfactory. Out of 41,000 C.ft. of wood cut less than 2,000 C.ft. of wood were put through the stills. The prospects of the industry are not at present hopeful, but it is perhaps early as yet to pass a final judgment.

Alnavar-Dandeli Railway.

The results of the working of this Railway for the year 1937-38 as compared with those of 1936-37 are as under :—

Year.	Receipts.	Expenditure.	Surplus. or deficit.
	Rs.	Rs.	Rs.
1937-38	88,419	41,926	+46,493
1936-37	26,483	37,937	—11,454
Difference	61,936	3,989	

The result of the year's working is very encouraging. The receipts and expenditure increased by Rs. 61,936 and Rs. 3,989 respectively and there was a surplus of Rs. 46,493 against a deficit of Rs. 11,454 in 1936–37. The exceptional improvement in the financial results of the railway is due partly to the adjustment of Rs. 46,467 on account of freight on railway materials short credited to this branch line during the years 1931-32 to 1936-37 and partly to the railment of manganese ore by the mining concessionaires and improvement in bamboo trade.

Thana Malki teak.—The 30 per cent. share amounting to Rs. 56,366 paid to the District Local Board, Thana, up to the end of the year 1937–38 has not yet been utilised. A standing Committee, with the Collector as Chairman and the President of the District Local Board and the three Divisional Forest Officers as members, met on 3rd November 1937 and decided upon a programme of works to be undertaken from the above amount. The work of preparing estimates for these works was entrusted to the District Local Board Engineer, but it is reported that no work has yet been done. This delay is very unsatisfactory as the proposed works are intended to improve communications and water supply in a number of villages.

Grass Storage (under 9 year monopoly contract).

The balance of 26,64,754 lbs. of grass at Dohad depot was sold for Rs. 6,777–1–9. No expenditure was incurred on this account. Some vacant sheds were rented out and a sum of Rs. 505 was realised therefrom.

Local Grass Storage Scheme.

The contract of the defaulting contractor referred to in the last year's report was suspended by the Divisional Forest Officer, Panch Mahals, for breach of certain conditions. It was subsequently terminated. The grass storage, therefore, now stands at 9¼ lakhs lbs. of grass.

Demarcation Survey Numbers.

As decided by Government steps are being taken to acquire I class survey numbers within the forest demarcation line in the Poona and Satara districts in consultation with the Collectors. A regular programme of 10 years for the acquisition of these numbers was fixed during the year and necessary funds for the first year have been provided for 1938–39.

Cattle Breeding and Poultry Farming.

The Giligan Cattle Breeding Society at Pimple in the East Khandesh Division continued to render good service to the agriculturists. There were in all 189 head of cattle in the farm againt 157 in the previous year. The Society applied for the other half of Pimple kuran as the half

already granted to it was found insufficient. It was recommended to Government that the additional area should be given to the Society at Re. 1 per acre under certain conditions and this was sanctioned after the close of the year.

An area of 100 acres of organised forest in the Belgaum Division was given out in 1936 on *hangami* (temporary) tenure to Rao Saheb V. A. Desai for the establishment of a cattle breeding and poultry farm. The land has been cleared and is under cultivation but there are no signs of development along the lines originally intended. The land will not be disforested until all conditions are fulfilled.

As a part of the village uplift scheme under the Agricultural Department a forest area of about 75 acres known as Goliskop kuran, 2 miles from Bagalkot in the Bijapur District, was handed over to the Department of Agriculture in connection with a scheme to improve the breed and the milking qualities of local buffaloes.

Hunting and Shooting.

The revenue realised from shooting license fees amounted to Rs. 7,235 as against Rs. 7,488 last year. In addition Rs. 25 were recovered as fine in the Southern Circle.

Details of animals killed are given below :—

All India Serial No.	Animal.	Northern Circle.	Central Circle.	Southern Circle.	Total.	Average of 5 years 1932–33 to 1936–37.
1(*a*)	Tiger	1	4	18	23	36
1(*b*)	Tigress	1	4	6	11	3
2	Panther	12	16	31	59	75
3	Wild cat	..	..	1	1	1
6	Hyena	..	3	..	3	1
8	Wild dog	..	..	..	..	3
14	Sloth bear	..	4	1	5	13
15	Wild elephant	..	..	11	11	19
17	Bison	..	..	19	19	21
29	Blue bull	1	43(*a*)	..	44	14
30	Bhekar (4 horned antelope) ..	..	3	..	3	3
32	Chinkara	..	3	..	3	2
33	Barking deer	1	..	1	2	2
37	Sambhar	3	2	10	15	14
38	Cheetal	4	12	9	25	12
46	Wild pig	11	356(*b*)	375(*c*)	742	418
	Total ..	34	450	482	966	637

(*a*) Includes 42 blue bulls killed by the gun club in East Khandesh.

(*b*) Includes 306 wild pigs killed by the gun clubs in East Khandesh, 15 by Piloba Dhondiba Dhumal and 35 by Palashi-Kolavdi gun club in the Satara District.

(*c*) Includes 301 wild pigs killed by gun clubs in the Dharwar District, 6 by gun clubs in the Belgaum District and 28 by gun clubs in the Kanara District.

During the year, the protected forests in the Thana District were brought under the game rules subject to the proviso that the agriculturists who hold gun licenses for crop protection will be entitled to shoot pig and *nilgai* only in the protected forests falling within the areas of their licenses.

A labourer who was attacked by a boar in Kanara Northern Division died from his injuries in hospital. One person in Chandgad Mahal was injured by a panther.

A man-eating tigress had killed five people within a short period in the Konar jungles of Bhatkal Petha—Kanara Western Division, and the Collector of Kanara offered a reward of Rs. 50 to the person killing this animal. A local Shikar party of about 80 people was organised. This party led by the Police Sub-Inspector and by the officiating Range Forest Officer, Bhatkal, Mr. Abdulgani Mahmad Isuf Mandlik set out to hunt the man-eater. A beat was arranged in which the tigress was despatched at close quarters by Mr. Mandlik from his position on the ground. The courage displayed by Mr. Mandlik on this occasion greatly impressed the local people who appealed that Mr. Mandlik's act be recognised in some more substantial manner. This resulted in the increase of the reward from Rs. 50 to Rs. 100. The measurements of the man-eater were—length 9′, height 3′–6″.

Increase or Decrease in the number of Wild Animals or Birds.

Northern Circle.—The Divisional Forst Officer, North Thana, reports that game in his division has practically become extinct and that wild birds are rarely found. In East Thana tigers are reported to be very few. Scarcity of wild life is also reported from East Nasik, while in Mandvi Range fewer animals were noted than usual. This was possibly due to a decrease in immigration from Baroda, where little shikar was done during the year.

Central Circle.—No change in the animal or bird population was noticed in any Division of the Circle except in the East Khandesh and Satara Divisions. In East Khandesh there was a large increase in animals and peafowls at Ghodasgaon. *Chinkara* and four horned antelope showed a marked increase, about 33⅓ per cent., in the Satpudas. Elsewhere the number of game birds seem to have decreased. In the Mahableshwar, Range of the Satara Division, *sambhar* appear to be on the increase, while in the Dhebewadi range of the same division the number of *cheetal, sambhar* and panther decreased. There was no change elsewhere in the division.

Southern Circle.—In Kanara Northern Division a decrease in carnivora and an appreciable increase in bison in High Forests is reported. Tiger and panther have decreased while *cheetal* and *sambhar* have increased in the interior forests in Eastern Division Kanara. In the Dharwar District, there was a decrease in pig. No change was noticed elsewhere.

Rewards amounting to Rs. 764 were granted by the Revenue Department for killing noxious animals in Kanara, Belgaum and Dharwar Districts :—

	Rs.
Wild elephant	575
Wild dog	5
Wild pig	184
Total ..	764

GUN CLUBS.

Three new gun clubs in addition to the one established in May 1936, were formed in East Khandesh under the technical advice of Mr. Bhide, the Shikar Officer, and Mr. Gosavi, the Agricultural Overseer. These clubs were given permission to hunt and shoot pig and *nilgai* in Ghodasgaon, Chikhali and Sarole, etc., kurans and coupes of scrub felling series No. II with a view to giving relief to the agriculturists. Out of the three clubs in the Satara District, one at Palashi-Kolavdi applied for the grant of the grass area of 4 closed coupes in their village on cutting terms at a concessional price of Rs. 150. The request was granted as the financial condition of the club was far from satisfactory.

In the Southern Circle two new clubs were organised in the Belgaum District. The period for hunting pig was extended to the end of January and the condition of giving 24 hours' notice of intention to hunt was relaxed subject to certain conditions. The Collector of Belgaum remarks as follows on the gun clubs in his district :—

" The mildly expressed criticism of the Divisonal Forest Officer that the gun clubs in the district are not under adequate control appears to be justified. There is evidence available that these bodies function but only spasmodically and it is still not clear that they possess any appreciable value or are likely to prove an effective check against pig."

The number of animals killed by the various clubs are given in the foregoing statement and the note thereunder.

Malki forests.—The Divisional Forest Officer, Kolaba, remarks as under on the question of preservation of malki forests :—

" The khoti question is at last nearing a satisfactory solution with the decision of Government to introduce legislation to fix the share of the khot at one-third of the net revenue after deducting all expenses including the expenses of management. It is hoped something similar will be done with the extensive malki forests in this Division. Recently Government wanted to know if the bare and barren Deccan hills could not be planted up on the lines of similar hills in Italy, which the Italian Government have been planting in recent years. It is a much easier task and, in the interest of the community as a whole, a more urgent necessity for Government to obtain (like the Italian Government) control over these private forests so that they are

preserved and the present denudation with the ultimate erosion that denudation leads to, is checked betimes. For the malki forests too are on slopes and need to be protected from ruthless over-cutting."

Forest Exhibitions.

Timber specimens and other forest products were exhibited at the Central Exhibition held at Wai in the Satara District in October 1937.

In the Agricultural show at Bandhan in the Manor Range of the Nortern Circle, the bad effects of uncontrolled grazing were shown by means of clay models among other exhibits. The villagers were also shown by means of diagrams and pictures how forests prevented land slides on hills and the silting up of the cultivable land below.

An important event of the year was the "Karnatak Agricultural and Industrial Show" held in Belgaum in January 1938. The Forest Department took a big part in this and besides exhibiting a large and varied selection of interesting exhibits gave valuable assistance to the Show Committee by providing the large requirements of bamboos (at concession rates)and boards (on loan) for the stalls for other exhibitors. The exhibit which attracted most attention was the small timber house designed and constructed by the Forest Engineer. This is the portable model that was used at the 1937, Industrial exhibition at Poona. Most of the smaller forest exhibits were displayed in this house. These consisted of a large variety of minor forest produce exhibits, sandalwood, ebony and ivory carvings, sandalwood billets, locally made teak and blackwood furniture, figured teak and matti (*Terminalia tomentosa*) planks, and many other articles of interest. Larger exhibits were displayed in the ground outside the house. These also were of a varied nature :—Saw mill equipment, logs of various species, a model timber cart, an Ascu plant, a round teak pole timber bridge, etc. There was also a small forest nursery. An important feature of the Forest Section was the demonstration of the working of the Ascu plant. Junglewood poles of different species were treated in the grounds and the item attracted wide interest.

The general organisation of the Forest Section of the Exhibition was placed under the Working Plans Division, Southern Circle. Messrs. R. F. Sandeman and F. A. B. Coelho with the assistance of a small staff which included Range Forest Officer, Mr. M. V. Warti, were responsible for this. The Forest Engineer, Mr. R. V. Alexander was responsible for the erection of the Forest House, the construction of the teak pole bridge, the flood lighting of the house, the Ascu plant and other engineering exhibits, while the Divisional Forest Officer, Belgaum, Mr. H. C. Holmes arranged for the Forest nursery. Mr. Holmes also had other important duties in connection with the preliminary arrangements. The credit for the great success of the Forest Section of the Exhibition is due entirely to the good work of these Officers. The Forest Engineer received an award certificate for his Exhibit while a II class certificate was awarded to the Dharwar Central Sandalwood Depôt for its sandalwood exhibits. The

co-operation of local manufacturers in providing finished articles such as furniture, etc. for exhibit contributed much towards the attractiveness of the Forest Section.

Industries.

Match manufacture.—Only 2 matchwood coupes were sold, one in North Thana Division for Rs. 665 and the other in the Mandvi range of the Surat Sub-Division, at a concessional rate of Rs. 2–11–0 per cartload subject to the payment for a minimum number of 100 cartloads. In neither of these cases did the contractor remove any material. The matchwood coupes in the Panch Mahals, and East and West Thana divisions remained unsold due to lack of demand.

Glass Bangle Industry.—In order to revive and assist the glass bangle industry at Ghodgeri in the Belgaum district the grant of a fuel coupe at a concessional rate to the Kajgar Co-operative Industrial Association, Ltd., was recommended to Government whose orders sanctioning the same were received after the close of the year.

Basket making industry.—In order to help the basket making industry in the Dharwar district a recommendation has been made to grant bamboo at a reduced rate to those engaged in the industry.

Paper manufacture from bamboo pulp.—Preliminary work in connection with the survey of bamboo supplies availble for a paper pulp factory in Kanara was undertaken.

Village Improvement Scheme.

It is gratifying to be able to record that much good work in the matter of village improvement has again been done this year by all grades of forest officers throughout this province. Villagers were assembled and lectures given on a variety of subjects not merely pertaining to forests but also on such topics as the necessity for and value of education, sanitation, pure water supply, etc. By means of interesting "talks", clay models, charts, posters, diagrams and on occasions on which the village uplift van visited various localities and also through the medium of the press, endeavours were made to explain to as large an audience as possible the nature and extent of forest privileges, the evils of overgrazing and late fires, the advantages of stall feeding and rotational grazing, the dangers of erosion and floods resulting from denudation and the obvious necessity for preserving and improving forests.

The response to these activities is encouraging. There are concrete instances where at the suggestion, and under the guidance of, forest officials, villagers have repaired roads, cleared ground round dwellings and water sources, planted trees, etc. and the indications are, judging by the degree of co-operation of the people in matters of common interest, that a better forest sense is very gradually being developed. To enable the Village Uplift Committee to function effectively, free grants of timber and other forest produce were made for works of public utility.

FOREST PRIVILEGES.

In addition to the abolition of grazing fees on all cattle except those coming from Indian States, and other provinces, as already mentioned earlier in this report, Government have, in passing orders on the report of the Forest Grievances Committee appointed in February 1935, sanctioned certain additional forest privileges the more important of which are as follows :—

(1) The concession of removing free of charge stones and earth from places approved by the Divisional Forest Officer for the gatherers' own domestic or agricultural use, which was in force up to now in one or two districts, has been extended to forest villages throughout the Province.

(2) The use of carts has been permitted for removing earth, stone and fallen leaves, throughout the Province and for removing thorns in the districts of Thana, Broach and Panch Mahals, Dharwar and Belgaum, all of which could formerly be removed by headloads only.

(3) The occupants of rice lands in the above-ghat talukas of the Kanara District have been permitted to remove leaves (*soppu*) from minor forests on the same conditions as are applicable to the exercise of that privilege in the below-ghat talukas of that district.

(4) The privilege of removing fallen leaves and grass from open forests for *bona fide* agricultural and domestic uses but not for sale or barter is extended to the inhabitants of all forest villages in the Province.

(5) In Kanara no teak plantations are to be raised within half a mile of the village site and ½ mile of cultivated or cultivable land paying assessment to Government.

Further, Bhils and other aboriginal tribes in Khandesh have, under certain conditions, been granted the concession of removing dead wood other than teak, *khair* (*Acacia catechu*) and *tiwas* (*Ougeinia dalbergioides*), on payment of half an anna per headload, for sale or barter.

Remarks of Divisional Commissioners on Circle Reports are given below :—

Commissioner, Northern Division (Mr. V. S. Bhide, I.C.S.).

NORTHERN CIRCLE.

It is satisfactory to note that the Ozar-Saiwan Road and the Khardi Parali Road, the necessity and importance of which, were emphasised by the Commissioner in his review in the Administration Report for 1935–36, have been sanctioned and now await the allotment of funds. The Commissioner hopes that it will not be long before the necessary funds are allotted and the work taken in hand.

2. Various reasons have been assigned for the increase of forest offences over last year's figures. The increase over last year's figures is, however, not great and calls for no special remarks, so far as this Division is concerned.

3. The Commissioner finds that the percentage of cases disposed of in the courts has steadily increased, the present figure, viz., 67 per cent. being the highest achieved since 1935-36. Even so the Commissioner feels that efforts must be made further to reduce the number of cases remaining over at the close of the year.

4. There has been a decrease of Rs. 1,73,924 in the surplus from Forest revenue as compared with the previous year and this has been mainly attributed to the abolition of grazing fees, whereby revenue to the extent of about Rs. 1,25,000 has been sacrificed; the revised method of selecting for disposal in the III thinning only the old and decaying trees is also partly responsible. Under this method though more timber was actually disposed of than last year its value was actually about Rs. 31,000 less.

5. Last year the Commissioner (Mr. Garrett) commented on the dilatoriness of the District Local Board, Thana, in putting up a programme for the utilization of the monies received as bonus from the sale proceeds of the Thana Malki Teak. It appears that though a programme has been agreed to no effective steps have been taken by the District Local Board during the year to carry out the works which are intended to improve communications and water supply in a number of villages.

6. The Commissioner is glad to note that the Forest Officers continue to devote time and labour to village uplift and also do propaganda as regards the benefits accruing from proper forest conservation.

Commissioner, Central Division (Mr. J. W. Smyth, C.S.I., C.I.E., I.C.S.).

NORTHERN AND CENTRAL CIRCLES.

1. *Housing Accommodation.*—Housing accommodatin for Forest subordinates particularly in the bad climate area should be provided as as soon as funds are available.

2. *Rights, Privileges and Free Grants.*—During the year free grants of timber were made to poor people in deserving cases for the construction of and repairs to their houses and huts in both Circles. In the Central Circle such grants were also made for the construction of and repairs to temples, chawdis, mission schools, etc., these being works of public utility. Stone (metal), etc., worth Rs. 31,560 was given free to the Public Works Department and Municipalities for the construction of roads. The concession of removing stones and earth free of charge from places approved by the Divisional Forest Officer for domestic or agricultural use has been extended to forest villages throughout the Province.

3. *Forest Offences.*—Compared with 1936-37 there was a decrease of 1,094 offences in the Central Circle and an increase of 676 in the Northern Circle. The decrease in the Central Circle was noticed under the marginally noted heads. There was however an increase in Satara Division under the heads (1) and (2). The increase under (1) is attributed to the greater vigilance of the Forest subordinates in bringing offences to light. The increase under (2) was due to a wrong impression created in the minds of the public that the closed areas also were thrown open to grazing on the abolition of grazing fees and the grant of free grazing for all village cattle. The decrease under the head " Others " was due to a smaller number of breaches of the Transit Rules being detected. The increase in the Northern Circle occurred mainly in the East Nasik Division and the West Nasik Division. Owing to the abolition of grazing fees the subordinates in the Nasik Divisions were able to devote more time to patrolling, and this enabled them to detect larger number of offences under the head " Unauthorised fellings ".

1. Unauthorised fellings .. 366
2. Unauthorised grazing .. 453
3. Other offences .. 287

4. *Prosecutions.*—Out of 146 cases in the Central Circle 107 were decided. Convictions were recorded in 99 cases as against 134 in the previous year. Apart from this 6,512 cases were compounded in the Central Circle and yielded Rs. 35,529 in compensation.

5. *Protection from Fire.*—The total area burnt in the Central Circle during the fire season ending May 31st, 1938 was 227 square miles as against 144 square miles in the previous year. Persons using roads, cart tracks, etc., passing through Forests were responsible for a certain number of accidental fires. External fires crossing fire traces were responsible for the big fires in the Satpudas in the East Khandesh Division early in June 1937. The increase in the number of fires was also partly due to the fact that grass was not removed in abnormal quantities as it was in the previous year. There were no cases of communal punishment in either Circle.

6. *Protection of crops from wild animals.*—The Gun Clubs in East Khandesh District appear to have made satisfactory progress in the destruction of pigs and nilgais.

7. *General Remarks.*—There was a decrease of Rs. 2,76,988 in the gross forest revenue in the Central Circle. It is attributed to (1) the abolition of grazing fees and (2) the transfer of Mandvi Sub-Division to the Northern Circle.

The special feature of the year was the abolition of grazing fees and the consequent refund of the fees already collected (*vide* Government Resolution, Revenue Department, No. 4217 of September 22nd, 1937). In the Central Circle alone an amount of Rs. 1,28,831 was refunded.

With a view to reducing the pressure of grazing by cattle coming into Khandesh from State territories along the Agra Road a special scheme for rotational grazing in the East Shirpur Range has been introduced.

The co-operation on the part of the Forest Department with the villagers and the various Village Improvement Propaganda Sub-Committees continued as before.

The Surgana Durbar has agreed to the construction of a road through its territory from Palsan to Kotala. This will open up the market for the North Peint coupes and result in a material improvement in coupe prices realized.

The question whether the Akrani and Peint Mahals should continue to be administered by the Forest Department is under consideration.

Commissioner, Southern Division (Mr. D. MacLachlan, I.C.S.).

SOUTHERN CIRCLE.

The gross revenue and expenditure were Rs. 18,49,871 and Rs. 10,03,241 respectively as against Rs. 18,90,160 and Rs. 11,17,570 respectively during the previous year. The fall in gross revenue was more than counterbalanced by the fall in expenditure so that the surplus amounted to Rs. 8,46,630 as against Rs. 7,72,590 during the previous year. The decrease in the gross receipts is just over Rs. 40,000 but the receipts include Rs. 79,317 on account of the price of previous year's converted sandalwood sold during the year under report. If this is taken into account the drop in gross revenue comes to Rs. 1,20,000. The decrease in gross revenue was due to the abolition of grazing fees and a decline in the timber market.

2. The number of forest offences fell from 2,699 to 2,377. The decrease is appreciable. It is partly due to a better understanding of the privilege rules by the villagers concerned.

3. There was an apparent fall in the total number of cattle admitted to grazing in Government forests as compared with the previous year. But this is due to the fact that no accurate record of animals that grazed in forests was maintained in some of the divisions after receipt of Government orders postponing and subsequently abolishing the collection of grazing fees.

4. The four forest Mahals of Dandeli, Kulgi, Virnoli and Kirwatti in the Kanara District continued to be managed by the Forest Department.

5. The Forest Advisory Committees in Dharwar and Kanara discussed 3 and 13 questions respectively. The proposals which were within the scope of the committees were disposed of to the satisfaction of the members concerned.

6. The working of the Alnavar Dandeli Forest Railway resulted in a surplus of Rs. 46,493 as against a deficit of Rs. 11,454 in the previous

year. This result is very encouraging. It is partly due to the railment of manganese ore by the mining concessionaires and partly to improvement in the bamboo market.

7. *Gun Clubs.*—Two new clubs were organised in the Belgaum District during the year. The scheme is on the whole making steady progress, but the results achieved cannot be said to be very satisfactory. The period of hunting pig has now been extended and the conditions of giving 24 hours' notice relaxed.

8. The efforts made by the Forest Officers in the matter of village uplift and in explaining to the people the nature and extent of privileges under the Code deserve commendation. This method is likely to be more effective in the end than prosecutions and will go a long way in popularising the Forest Department.

The special attention given to Cottage industries also deserves mention.

9. The Commissioner considers that for the reasons given by the Conservator in paragraph 152 of his report the early appointment of a silviculturist would be in the best interest of the Department.

10. The relations between the Forest Department and the Revenue Department continued to be cordial.

11. The administration of the Circle was carried on efficiently and tactfully throughout the year under report.

Kolaba Division.

The total revenue from the working of the forests rose from Rs. 1,54,858 to Rs. 1,68,560 i.e., by Rs. 13,702, while the expenditure fell from Rs. 1,32,106 to Rs. 1,27,804 i.e., by Rs. 4,302. The net increase of Rs. 13,702 in the gross revenue is attributed to coupes fetching better prices during the year.

2. The total number of forest offences during the year was 1,712 as against 1,659 in the previous year. The rise is mainly due to an increase in the "Felling offences" from 1,145 to 1,219 which, however, is said to be due to the greater vigilance shown by the forest subordinates in detecting these offences. There was an appreciable decrease in the number of offences recorded under "Other offences".

3. The damage caused by erosion to the casuarina plantations of Akshi and Nagaon on the sea-coast during the year was less than in the previous year.

4. The newly constituted Forest Advisory Committee of Kolaba held only one meeting at Alibag on 17th December 1937. The proposal brought forward by Mr. R. N. Mandlik, M.L.A., that the kuran at Govan should be given to the villagers for free grazing was unanimously passed and the resolution was given effect to at the close of the year. No other subjects were discussed. Beyond this the Forest Department in the Kolaba Division has not been in a spectacular position to do

anything to further the Village Improvement work. But the propaganda work done by this department officers in this direction is commendable and the increase in the Agri-cum-forestry co-operation is to be noted.

5. The administration of the Division was on the whole satisfactory. The relations between the Forest Department and Revenue Department continued to be cordial.

D. B. SOTHERS,
Chief Conservator of Forests,
Province of Bombay.

Poona, 10th October 1938.

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